

**U.S. Nuclear Regulatory Commission and Department of Homeland Security
Public Meeting Regarding Emergency Preparedness (EP) Regulations and Guidance
for Commercial Nuclear Power Plants**

**Summary and Analysis of Comments
(Received Between August 31 and October 31, 2005)**

U.S. Nuclear Regulatory Commission
Office of Nuclear Security and Incident Response

Department of Homeland Security
Office of Infrastructure Protection



February 28, 2006

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Abbreviations and Acronyms

ADAMS	Agencywide Documents Access and Management System
AEA	Atomic Energy Act
ALC	Annual Letter of Certification
BEIR	Committee on the Biological Effects of Ionizing Radiations
BRER	Board on Radiation Effects Research
BWR	Boiling Water Reactor
CFR	Code of Federal Regulations
CRCPD	Conference of Radiation Control Program Directors
DHS	U.S. Department of Homeland Security
DPR	Division of Preparedness and Response
DPW	Department of Public Works
EAL	Emergency Action Level
ECL	Emergency Classification Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPA	U.S. Environmental Protection Agency
EPD	Emergency Preparedness Directorate
EPZ	Emergency Planning Zone
ERDS	Emergency Response Data System
ERO	Emergency Response Organization
ERP	Emergency Response Program
ETE	Evacuation Time Estimate
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FCC	Federal Communications Commission
FPL	Florida Power and Light
FRMAC	Federal Radiological Monitoring and Assessment Center
HHS	U.S. Department of Health and Human Services
HSOC	Homeland Security Operations Center
IAEA	International Atomic Energy Agency
KI	Potassium Iodide
LLEA	Local Law Enforcement Agency
NAS	National Academy of Sciences
NEI	Nuclear Energy Institute
NIST	National Institute of Standards and Technology
NOUE	Notification of Unusual Event
NRC	U.S. Nuclear Regulatory Commission
NREP	National Radiological Emergency Preparedness Conference
NSIR	Nuclear Security and Incident Response
ORO	Offsite Response Organization
PAR	Protective Action Recommendation
PI	Performance Indicator
PRM	Petition for Rulemaking
PWR	Pressurized Water Reactor
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RIS	Regulatory Issue Summary
Rockland F.U.S.E.	Rockland Friends United for Safe Energy
ROP	Reactor Oversight Program
SPDS	Safety Parameter Display System
TMI	Three Mile Island

Introduction

On August 31 and September 1, 2005, the Nuclear Regulatory Commission (NRC) Emergency Preparedness Directorate, in conjunction with the Department of Homeland Security (DHS), held a public meeting to obtain input regarding emergency preparedness (EP) requirements and guidance for commercial nuclear power plants¹. Approximately 200 stakeholders attended the meeting that was held at the Bethesda North Marriott Hotel and Conference Center in Maryland. In addition to officials from these coordinating agencies, the spectrum of attendees included representatives from State, local, and tribal governments; public interest groups; the nuclear industry; and the general public. Appendix A contains a list of the meeting attendees who registered.

During the first day of the meeting, a roundtable of invited panelists discussed topics related to the ongoing review of EP regulations and guidance. Appendix B contains a list of the roundtable participants. The second day was devoted to addressing comments and questions captured during an NRC- and DHS-sponsored workshop at the 2005 National Radiological Emergency Preparedness Conference.

In addition to comments transcribed from the 2-day public meeting, the NRC accepted written comment submissions until October 31, 2005. Commenters, representing a variety of stakeholder groups and interests, submitted written comments. The NRC also received comments via cards submitted at the public meeting.

This document provides an analysis of the generic comments presented during and after the meeting. However, additional time and resources are needed to prepare analyses for site-specific comments. These analyses will be posted shortly in a separate document.

Exhibit 1 shows the commenter identification number (commenter ID) associated with each individual that provided comments during the 2-day public meeting. Exhibit 2 identifies the individuals who submitted written comments during the public comment period. The comment summaries reference these commenter ID numbers. For public meeting comments, the commenter ID is followed by either a "-1" or a "-2." The "-1" signifies a comment from the first day of the public meeting, while the "-2" signifies a comment from the second day of the public meeting.

¹ 70 *Federal Register* 43721-43725, July 28, 2005.

**Exhibit 1. Individuals Providing Comments During the Public Meeting
(August 31 – September 1, 2005)²**

Commenter ID	Commenter	Affiliation
M001	(not used)	
M002	Rochelle Becker	Executive Director, Alliance for Nuclear Responsibility
M003	Jeffery Benjamin	Vice President, Licensing and Regulatory Affairs, Exelon Nuclear
M004	(not used)	
M005	(not used)	
M006	Samuel Collins	Regional Administrator, Region I, U.S. NRC
M007	Craig Conklin	Chief, Nuclear and Chemical Hazards Branch, DHS
M008	Dale Dusenberry	State of North Carolina Radiation Protection Section
M009	Eric Epstein	Chairman, TMI-Alert, Inc.
M010	Jana Fairow	Manager, Preparedness Programs, Illinois Emergency Management Agency
M011	Andrew Feeney	Deputy Director, New York State Emergency Management Office
M012	(not used)	
M013	John Giarrusso	Massachusetts Emergency Management
M014	Aubrey Godwin	Director, Arizona Radiation Regulatory Agency
M015	Onalee Grady-Erickson	Senior Planner, Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management
M016	Jim Greer	Director, Ottawa County Emergency Management, Ohio
M017	Debbie Grinnell	Resource Advocate, C-10 Research and Education Foundation
M018	Paul Gunter	Reactor Watchdog Project Director, Nuclear Information and Resource Service

² Comments captured during the public meeting are identified in alphabetical order by the speaker's last name. The accession numbers for the first and second days of the public meeting are ML052620356 and ML052620349, respectively. These accession numbers indicate the location of the public meeting transcripts in the ADAMS system.

Commenter ID	Commenter	Affiliation
M019	Ted Jackson	Manager, Environmental Emergency and Radiation Program, Georgia Environmental Protection Division
M020	Rich Janati	State of Pennsylvania
M021	(not used)	
M022	Mary Lampert	Chair, Nuclear Advisory Committee, Town of Duxbury, Massachusetts
M023	(not used)	
M024	Mark Lemke	Emergency Planning Manager, Pacific Gas and Electric Company
M025	Suzanne Leta	New Jersey Public Interest Research Group
M026	(not used)	
M027	Jill Lipoti	Assistant Director, New Jersey Department of Environmental Protection
M028	David Lochbaum	Nuclear Safety Engineer, Union of Concerned Scientists
M029	(not used)	
M030	Nader Mamish	Director, Emergency Preparedness Directorate, U.S. NRC
M031	(not used)	
M032	(not used)	
M033	Patrick Mulligan	Chair, Conference of Radiation Control Program Directors E-6 Committee
M034	Mike Nawoj	New Hampshire Department of Safety, Bureau of Emergency Management
M035	Alan Nelson	Chief, Emergency Preparedness, Nuclear Energy Institute
M036	Carol O'Claire	Ohio Emergency Management Agency
M037	Susan Perkins-Grew	Emergency Preparedness Manager, FPL Energy, Seabrook Station
M038	Lisa Rainwater	Riverkeeper
M039	Shannon Rindfleisch	Emergency Planner, Prairie Island Indian Community
M040	Mike Rose	Manager, Emergency & Support Services, City of Dana Point, California

Commenter ID	Commenter	Affiliation
M041	(not used)	
M042	Susan Shapiro	Rockland F.U.S.E.
M043	(not used)	
M044	Anthony Sutton	Commissioner, Westchester County Department of Emergency Services, New York
M045	Elgan Ursey	Tennessee Emergency Management Agency
M046	Tracey Vardas	Emergency Services Coordinator, Office of Emergency Services, San Luis Obispo County, California
M047	Marty Vyenielo	Chief, Emergency Response for Pennsylvania, ERP
M048	(not used)	
M049	Ned Wright	Director, Linn County Emergency Management, Iowa
M050	(not used)	

Exhibit 2. Individuals Submitting Written Comments During the Comment Period³

Commenter ID	Commenter	Affiliation	ADAMS Accession Number
PC1	Rochelle Becker	Alliance for Nuclear Responsibility	ML052590251
PC2	Rochelle Becker	Alliance for Nuclear Responsibility	ML052590036
PC3	David Lochbaum	Union of Concerned Scientists	ML052500271
PC4	Alan Nelson	Nuclear Energy Institute	ML052590028
PC5	Mary Lampert	Town of Duxbury, MA	ML052640166
PC6	Mary Lampert	Town of Duxbury, MA	ML052560468
PC7	Jill Lipoti	New Jersey Department of Environmental Protection	ML052900065
PC8	Susan Shapiro	Rockland F.U.S.E.	ML052910026
PC9	Cristine McCombs	State of Massachusetts	ML053210472
PC10	Paul Gunter	Nuclear Information and Resource Service	ML053050435
PC11	Riverkeeper Petition	Various First Responders	ML052590338
PC12	Morgan Rafferty	San Louis Obispo Mothers for Peace	ML053050437
PM7	Comment card from Public Meeting	Unknown	N/A
PM8	Comment card from Public Meeting	Unknown	N/A
PM9	Comment card from Public Meeting	Unknown	N/A

³ Comments captured during the public meeting are identified by a prefix PM and individual comment submissions are labeled in chronological order with the prefix PC. The accession number indicates the location of the written comments in the ADAMS system.

Comment Summary and Analysis

1. Federal Government's Responsibility

Comments: Three commenters addressed the Federal government's responsibility for emergency preparedness (EP). One commenter noted that each American citizen has the right to health and safety, irrespective of where the person lives. Therefore, the commenter stated that the Federal government must provide a consistent level of protection.

Analysis: The NRC's mission is to regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.

Emergency preparedness and response begin at the local level. The role of the Federal government is to provide emergency response planning assistance and, when requested, to provide support to the States when State resources have been exceeded in the event of an emergency. The National Response Plan was developed by the Department of Homeland Security (DHS) to facilitate appropriate response from the Federal government under a variety of conditions.

Comment: A local government representative mentioned that partnering with DHS in certain regions is limited only to evaluation times. The commenter suggested that a working relationship, similar to that developed with the Nuclear Regulatory Commission (NRC), would result in better outcomes [M046-1].

Analysis: The NRC and DHS continue to work with and participate with State and local communities in numerous radiological preparedness and response drills and exercises in an effort to improve the working relationship between the Federal government and State and local offsite response organizations. DHS has always been, and remains, available to participate with State and local governments in partnering and outreach activities to the maximum extent possible, when requested.

Comment: A commenter asked whether there is coordination between the various agencies and which agency has final approval over plans [PC1].

Analysis: The NRC maintains final approval for licensing nuclear power plants, and has the responsibility for approving the onsite (licensee) emergency planning. DHS is responsible for evaluating the radiological emergency planning and preparedness activities and oversight of offsite (State and local government) emergency preparedness for nuclear power plants. NRC and DHS work together and coordinate at both the headquarters and regional levels on issues pertaining to emergency preparedness.

1.1. DHS

Comments: Two commenters emphasized the need for public input on the DHS reorganization process [M014-1, M033-1].

Analysis: A DHS representative at the meeting stated that the reorganization process was being accomplished at a high level of management in order to streamline operations within DHS. The reorganization of DHS, as related to the REP Program, is mostly organizational (name/title changes) in nature. The mission and responsibilities, including contacts and pre-established relationships, will remain the same. Day-to-day communications and interactions at the Regional office/local level are not expected to change significantly. No impact is expected on REP Program functions.

Comments: Two commenters addressed the need for DHS to maintain its focus on the nuclear industry, worker protection equipment, and preventative measures despite the reorganization and cautioned against diverting current resources and staff to support other industries of concern to DHS [M014-1, M022-1].

Analysis: All DHS REP staff are dedicated solely to the long-established REP Program and directly related missions.

1.2. NRC

Comments: Several comments addressed the role of the NRC in emergency response planning. Two commenters noted that the NRC must continue to support local operations through timely responses to local level questions about regulatory requirements concerns [M044-1, M017-2]. Another commenter advocated for NRC to get more involved with emergency preparedness “outside of the fence”⁴ because of their regulatory authority over licensees [M044-1].

Analysis: At the Federal level, DHS is responsible for evaluating the radiological emergency response planning and preparedness activities and oversight of off-site emergency preparedness for nuclear power plants while the NRC has responsibility for evaluating the onsite emergency planning. While the NRC reviews DHS findings as part of the NRC’s overall finding regarding EP, neither the NRC nor its licensees have authority over OROs or their offsite EP activities.

The NRC recognizes that communication with State and local authorities is important to successful emergency response planning and preparedness. A team of highly qualified emergency preparedness and response staff members was assembled to support NRC outreach efforts.

Comments: Two commenters called for a greater NRC role in local level emergency preparedness planning. The commenters suggested that one way for the NRC to increase its role in local level emergency preparedness is through the creation of a Statewide NRC position responsible for all offsite emergency preparations [M017-1, M022-1].

Analysis: Each State has a Governor appointed State Liaison Office to act as the primary liaison to the NRC on issues under the jurisdiction of the NRC. Additionally, each NRC region has a regional State Liaison who serves as the lead NRC region contact with State, local, Federal, and tribal governments. The regional State Liaison participates on the Radiation Assistance Committee in coordination with DHS. The NRC also has established a point of contact with DHS who directly communicates and addresses issues of mutual concern between the NRC and DHS. However, the primary federal agency for offsite EP is DHS, and the NRC believes its current role in offsite EP is appropriate and does not require any change.

2. State/Local Government’s Responsibility

Comments: Five commenters noted that local level control over emergency preparedness planning is the most appropriate way to account for varying local conditions and first responder needs [M044-1, M020-1, M040-2, M045-2, M006-2]. Three additional commenters advocated local government’s responsibility for ensuring cooperation between stakeholders, the utility, and the public in preparing plans [M003-1, M014-1, M049-1]. Two commenters voiced support for

⁴“Outside the fence” EP activities are conducted outside the owner controlled area (OCA) by offsite response organizations (OROs) rather than by the licensee.

the current licensing process which requires local level collaboration and detailed EP planning [M003-1, M049-2].

Analysis: The NRC and DHS agree that local level control over emergency preparedness planning, based on applicable State laws, is the most appropriate way to account for varying local conditions, first responder needs and ensuring cooperation in preparing plans.

3. Licensee's Responsibility

Comment: One commenter advocated placing the additional emergency planning costs associated with enhanced security on the nuclear power industry instead of government [M018-1].

Analysis: The NRC and DHS understand that the nuclear power industry provides millions of dollars annually to fund State and local offsite emergency preparedness and response. These funds provide support for emergency plan development, training of personnel, procurement of equipment, facilities, and participation in drills and exercises, as well as any required security enhancements.

4. Emergency Response Organization Augmentation

4.1. Staging Area

Comment: One commenter suggested the need to identify the staging area⁵ location carefully and clearly in both the onsite and offsite EP plans [M009-1].

Analysis: The NRC agrees and is in the process of reviewing licensee emergency plans to ensure that this element is addressed. Issues related to security are considered Safeguards Information and therefore are available only on a "need-to-know" basis.⁶

Comment: A commenter asked where responsibility for ensuring security at the staging area would lie [M007-1]

Analysis: Security needs are site-specific and are considered in the planning process between licensees and offsite officials. NRC guidance⁷ states that after the EOF is activated, security protection is to restrict access to those personnel assigned to the facility.

4.2. Communication

Comments: Two commenters noted the need for offsite emergency response to be coordinated with onsite operations from a central location [M049-1, M006-1]. One additional commenter stated that an incident command system is needed to address communication issues during an emergency [M046-1].

⁵ With respect to NRC Bulletin 2005-02, the licensee's Emergency Response Organization (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. This staging location is referred to as an alternative facility, which could be the EOF, if it located outside the owner controlled area and not far from the site.

⁶ 10 CFR 73.21(c)(1)(v).

⁷ NUREG-0696, "Functional Criteria for Emergency Response Facilities," Section 4.1.

Analysis: The current emergency preparedness process ensures coordination between onsite and offsite response. The NRC inspection process reviews this coordination periodically. Additionally, the National Response Plan establishes an incident command system nationwide and is in the process of being implemented.

4.3. Other Related Comments

Comments: One commenter suggested that the process (that may include a list of authorized personnel) by which access is allowed to a sealed-off EPZ during an event should be described in detail in all emergency plans [M010-1].

Analysis: The EP process addresses issues of personnel access during security or any other type of events. Access to the emergency planning zone (EPZ) is usually coordinated through traffic control points as designated in offsite plans using established protocols. The use of access lists is just one option that may be considered for controlling access and reentry into the EPZ.

Comment: One commenter expressed concern that during a security-related event, emergency response organizations would not be activated until the site is secured, delaying the timeliness of public health protection efforts [PC3].

Analysis: EROs will be activated during security-related events and the NRC Order of February 2, 2002 (2002 Order), as supplemented by NRC Bulletin 2005-02, directs the licensee to establish and staff alternative facilities should the plant site not be secured. Staging the ERO in this manner will support rapid response to limit or mitigate site damage or the potential for an offsite radiological release.

5. Emergency Operations Facility (EOF)

5.1. Combined EOF

Comments: One commenter asked if there have been any changes to the overall number of EOFs since 9/11. Noting the necessity of EOFs in reducing emergency response time, this commenter expressed concern that EOF consolidation since 9/11 had resulted in decreased service capabilities [M009-1].

Analysis: Licensee submittals to consolidate EOFs are evaluated on a case-by-case basis using NRC guidance.⁸ Recently the NRC has approved consolidations of some EOFs. The staff has determined that there has been no decrease in response capabilities. The staff has identified that there have been enhancements to response capabilities as a result of these consolidations. Consolidated EOF's increase the pool of available resources to the site to mitigate and recover from an emergency event. Also, in response to a security-related event, the licensee can more effectively mobilize and manage its resources and communicate with local, State, and Federal emergency management. These facilities can also serve to streamline the response by the State emergency management officials as they ~~only~~ are more familiar with responding to one facility. In addition, the licensee must have the support of the State and local emergency management officials to consolidate EOFs.

⁸ NUREG-0696, "Functional Criteria for Emergency Response Facilities," Section 4.

5.1.1. Simultaneous Events

Comments: A comment asked about the capacity for a consolidated EOF to handle several simultaneous events [M015-1].

Analysis: During the evaluation of licensees' requests to consolidate EOFs, the NRC considers the ability to handle simultaneous events when evaluating the functionality of the consolidated EOF.

5.2. Unified Dose Assessment

Comments: According to a commenter, one jurisdiction developed a co-located EOF and EOC to accommodate the Health Department, State-level directors, and the utility. The unified dose assessment center, located within the co-located EOF and EOC, allows these groups to develop protective action recommendations together [M046-1]. Another commenter suggested that unified decisionmaking through a unified dose assessment has helped with the management of information [M011-1].

Analysis: A unified dose assessment center concept would be considered one option to meet existing regulations and guidance that allow for the use of acceptable alternatives to address specific organizational, political, demographic, and site differences and characteristics.

6. Emergency Classification System

6.1. Security-based EALs

Comments: Several commenters addressed enhancements to the security-based emergency action levels (EALs) and emergency classification levels (ECLs).

The NRC received some comments which support the current track the NRC is using for enhancing security-based EALs. One commenter mentioned that the security-based EALs are designed to supplement the existing set [PC4]. Another commenter stated that NRC is on the right track with the new security-based EALs. According to this commenter, emergency responders should not wait for a radiological event to take place before protective actions are initiated [M020-1].

Analysis: The NRC agrees with these comments.

Comment: Some comments from State agency officials expressed concern about the effect that security-based ECLs will have on current offsite response procedures. Specifically, the commenters indicated that existing ECLs cannot be easily modified to include security-based events because State and local governments have a "chain of events" that take place based on the classification level. The commenters warned that State and local response may be unnecessarily mobilized for security-based events that are easily dispensed by onsite security resources [PC9].

Analysis: The NRC recognizes this possibility. However, the EALs were developed recognizing this concern. The NRC staff will continue a dialogue with stakeholders on this issue as part of the ongoing review of EP regulations and guidance.

Comment: A commenter suggested that security-based changes to the ECLs will require significant involvement and event analysis by State homeland security and law enforcement as early as the Notification of Unusual Event (NOUE) level. However, these groups are not formally incorporated in offsite radiological emergency response plans (RERPs) currently [PC9].

Analysis: NRC regulations⁹ require that EALs be discussed with and agreed upon by State and local governmental authorities. In addition, the licensee is required to review the EALS with State and local governmental authorities annually. Even though state police and LLEAs may not be involved directly with EAL revisions, periodic drills and exercises provided opportunities to enhance familiarity with security-based EALs.

Comment: An industry representative explained that industry is constantly reviewing lessons learned and NRC guidance to revise the EALs. To implement any revisions to EALs, industry will revise the Nuclear Energy Institute's (NEI) NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, and will seek NRC endorsement. The goal will be a regulatory guide that goes out for public comment. The commenter stated that there will be an opportunity for the public to take a look at the revised EALs and industry's proposed implementation [M035-1].

Analysis: The NRC regulatory guide¹⁰ that endorses any revisions to NEI's EAL guidance will be available for public comment prior to issuance.

Comment: A commenter suggested that an important criterion for security-based events should be based on the consequence of the event. The classification should be based on whether an event is going to result in a release offsite, which would mobilize responders [M022-1].

Analysis: Mobilization of offsite response is not necessarily dependent on an offsite release. Factors for mobilizing the ORO include such things as plant conditions, hostile action, potential for release, or other hazardous conditions. The security classifications are meant to be "anticipatory."

6.1.1. Define Terms

There were several comments regarding the definitions associated with security-based events.

Comments: Two commenters stated that the definitions used need to be precise. One emphasized that semantics should not cause unnecessary offsite actions [M049-1]. Another commenter called for a "conservative" and "disciplined" approach to defining the security-based EALs [M049-1].

Analysis: The NRC staff concludes that these classifications are described appropriately. However, they will continue to be reviewed as they are implemented.

Comments: Two commenters focused on the definition of an NOUE. One commenter stated that the revised description of the ECL for an NOUE is unclear, particularly the phrase "indicate a security threat" [M015-1]. Another commenter suggested adding "credible" and "site specific" to the ECL for an NOUE. The commenter also suggested that the NRC add "confirmed threat" to the ECL for an alert [M019-1].

Analysis: The NRC will take these comments into consideration as the staff continues to refine the security-based EALs.

⁹ 10 CFR 50, Appendix E, Section IV. B.

¹⁰ Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 5.

Comments: One commenter emphasized that there needs to be a disciplined way to sort out whether or not a threat is credible to avoid unnecessary emergency responses [M049-1].

Analysis: The NRC will take this comment into consideration as we continue to refine the security based EALs.

Comment: One commenter expressed confusion about what qualifies as an incident of national significance (INS). This individual asked for clarification [M047-2].

Analysis: NUREG-0728, Revision 4, "NRC Incident Response Plan" and NRC Regulatory Issue Summary 2005-13, "NRC Incident Response and the National Response Plan" provide clarification of an incident of national significance (INS). In both documents, the NRC states that the following will likely be considered an INS: (1) a General Emergency declaration at a nuclear power plant resulting from an accident (i.e., a non-terrorist incident), (2) an emergency declaration (alert or higher) at a nuclear power plant or nuclear/radiological facility resulting from a terrorist incident, and (3) terrorist incidents outside nuclear/radiological facility boundaries involving an improvised nuclear device, radiological dispersal device, or radiological exposure device. Other incidents involving nuclear power plants, nuclear or radiological facilities, or materials licensed by the NRC or an Agreement State will likely be considered below the threshold of an INS.

6.1.2. Dose/release Framework

Several comments addressed fitting security-based EALs into the existing EALs, which are based on a dose/release framework.

Comments: The NRC received comments that expressed concern with making security EALs fit into the existing EALs "that have been traditionally based on exposure to the public." Unique terminology was suggested by a comment. These commenters stated that security-based EALs cannot be easily molded into the current offsite response and protective action schemes and that this was a particular concern because the existing protocol is designed for a release scenario, and security-based events do not necessarily involve releases [PC9, M044-1, M049-1].

Analysis: EAL schemes have always considered both direct and indirect event consequences in the potential to cause a radiological release, and the existing logic has not been changed by the enhancement of security-based EALs. Examples include EALs for severe weather and other natural phenomena, hazards to station operations (such as non-radiological toxic gas releases), loss of safety related equipment, as well as the existing security-based EALs.

Comment: A commenter cautioned that the use of EAL terminology (Alert, Site Area Emergency, and General Emergency) triggers automatic protective actions, such as pre-written press releases. The commenter stated that these actions will need to be revisited to ensure that they are appropriate for security-based EALs [PC7].

Analysis: The NRC agrees that automatic protective actions need to be re-visited in light of any new security-based EALs. This will be a part of the ongoing review of EP regulations and guidance.

Comment: One commenter suggested an alternative to address the differences between security-based events and dose/release events. In this individual's opinion, "we have unique circumstances here that there may actually have to be another manual, another set of EALs, whether it's security alert one, security alert two, security alert three." [M044-1].

Analysis: The NRC is currently evaluating the most appropriate way to fit security-based EALs into federal EP regulations and/or guidance. The NRC will take this comment into consideration as we continue to refine the security based EALs.

6.1.3. Events Below the Security-Related ECLs

Comments: One commenter from the public meeting stated that "lower grade EAL events" are dismissed and not evaluated as a systemic problem at a plant. One example of a "lower grade EAL event" is trespassing on a nuclear power plant's property [M009-1].

Analysis: The NRC does follow-up on such events and does hold licensees accountable for security failures. In addition, lower level events, which may not result in emergency plan classification, still may result in prompt response actions by OROs, specifically Local Law Enforcement Agencies (LLEA). For example, trespassing events may result in notification to LLEA and the NRC. Regulations in 10 CFR 73.55 and 73.71 apply to a number of lower level events that may not result in emergency plan classification but still warrant prompt actions and notifications of appropriate organizations.

6.2. Defining "Vital Area"

Comment: A commenter asserted that it is necessary to expand the "vital area" designations to also include spent fuel cooling and makeup equipment or to revise the emergency response plans so that both the reactor core and spent fuel hazards are handled comparably [PC3].

Analysis: The NRC has taken measures, through the 2002 Order and other means, to ensure that spent fuel pools and the equipment that support them are protected in a manner consistent with the risk they present and that mitigating strategies for the loss of support equipment are in process.

In terms of emergency response, the areas are handled comparably; in that EALs exist for security events, radiological levels in the plant, and radiological releases irrespective of whether the reactor or the spent fuel pool is involved. Additionally, there are EALs specifically for spent fuel pool issues.

6.3. Other Comments

There were several other comments related to emergency classification systems.

Comment: One comment made by three State agencies suggested that EAL information must be controlled to avoid panic or shadow evacuations [PC9]. Another comment made by three State agencies emphasized that EALs should be clearly communicated with local stakeholders [PC9].

Analysis: A recent study of 230 evacuation incidents¹¹ was completed by Sandia National Laboratories. While none of these evacuations were associated with an incident at a nuclear power plant, the NRC staff believes the conclusions of the study would apply to a nuclear power plant incident involving evacuation of the public. The study found that, in general, shadow

¹¹ NUREG-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations," dated January 2005.

evacuations (people evacuating outside of the designated evacuation area) did not have significant impact on traffic or on the efficiency of the evacuation. Also, emergency action level information is contained in publicly available documents and Federal regulations require that the licensee review the EALs with State authorities on an annual basis to ensure ongoing familiarity with the EALs.

Comment: A comment made by three State agencies asserted that there is no guidance from DHS regarding the inclusion of security-based events in State and local RERPs. The three State agencies also stated that until such guidance is issued, States are bound to their regulatory requirements, and all changes to plans must be vetted through and approved by DHS. As a result, the three State agencies explained that the enhanced ECLs may trigger offsite actions by the State and local governments that are not included under the description of the ECL[PC9].

Analysis: The NRC expects those actions that will be implemented are the emergency response actions associated with the declared emergency classification level as committed to in the approved emergency plan. These actions have been determined to be protective of public health and safety. Should revisions be necessary, the States should follow the standard process for revisions and approval.

Comment: One commenter asked: "What is the exposure level that determines emergency classification and protective action calls?" The commenter continues by asking: "How do those levels have to be readjusted after BEIR IV?" [PC5].

Analysis: The protective action guidelines from EPA-400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," dated May 1992, (EPA-400) recommend that offsite protective actions be considered when the projected or actual dose is expected to be one rem or greater. (This does not include any dose already delivered). It is important to remember that the EPA guidelines are not dose limits, rather they represent values at which consideration of protective actions are recommended. The findings from the Committee on the Biological Effects of Ionizing Radiation (BEIR) report (most probably the author is referring to the recently released BEIR VII report) reaffirm existing guidance. As a result, neither the NRC dose limits for occupational or public exposure nor the EPA protective action guideline dose values need to be changed.

7. Exercises and Drills

7.1. Security-based Drill and Exercise Program

Comment: With regard to the overall security-based drill and exercise program, a commenter from a State agency suggested that security-based drills should be integrated into the normal drill regime [PC7].

Analysis: The NRC agrees with this comment and such integration is in process.

Comment: A commenter asked how often utilities are conducting drills or exercises for the local law enforcement agencies. This comment expressed uncertainty about how familiar local law enforcement agencies are with a site's security plan [M020-1].

Analysis: Each site has a well-established liaison with their local law enforcement agency(s) that is documented in their NRC-approved security plans. These plans, whose effective implementation is a condition of each site's operating license, require that communication protocols be established, command and control structures be implemented, and periodic training be conducted. NRC inspectors routinely observe and assess the effectiveness of these plans.

7.1.1. Terminology Differences

Comments: One commenter stated that past integrated consequence management drills provided a valuable lesson. With a wide range of organizations participating, each group was speaking a different language. The commenter stated that there were problems associated with organizations using different terminology [M024-1].

Analysis: In response to Homeland Security Presidential Directive-5, “Management of Domestic Incidents,” DHS implemented the National Incident Management System (NIMS). This process established standardized incident management processes, protocols, and procedures, including terminology, that all responders — local, State, Federal, and tribal — will use to coordinate and conduct response actions. This process will improve overall emergency response.

7.1.2. Simultaneous Events

Comments: Four comments were received from stakeholders encouraging the NRC to exercise simultaneous events, one of which would be a security event. The commenters expressed disappointment that the NRC does not currently require this [PC2, PC1, PC5, M002-1].

Analysis: The biennial exercises generally involve simultaneous events. In addition, the integrated response drill and exercise program will include security events simultaneous with other plant events.

7.1.3. Federal Role

Comments: Five commenters urged more Federal government participation in nuclear power plant drills and exercises, not only security-based exercises and drills. One of the commenters explained that Federal government participation is needed to help identify where there are holes in the emergency response system. Another commenter suggested that more Federal government involvement will reduce the duplication of effort that currently occurs [PC7, M014-1, M044-1, M033-1, M047-2].

Analysis: The NRC will continue to seek further opportunities to participate in exercises involving Federal agencies with State and local agencies. In addition, the NRC is evaluating options to better support licensee exercises by simulating communications and interface with the NRC Operations Center.

7.1.4. Realistic Scenarios

Comments: The NRC received several comments asserting that exercise scenarios need to be more meaningful and realistic [PC5, M002-1, M028-1, M022-1]. Several commenters suggested that the drills and exercises should simulate an offsite radiological release (some specified that the release be fast-breaking) [PC5, PC8, M042-1]. One commenter asked about testing policies the NRC would adopt to take into account all scenarios [PC1].

Analysis: Exercises are intended to test the integrated capability and a major portion of the basic elements existing within EP plans and organizations. NRC and DHS guidance¹² states that “The scenario should be varied from exercise to exercise such that all major elements of

¹²Evaluation Criterion N.1 of NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants” (NUREG-0654).

the plans and preparedness organizations are tested within a 6-year period.” Guidance¹³ specifies that semi-annual drills be conducted which involve response to simulated airborne and liquid radiation measurement in the environment.

Commenters proposed some suggestions on realistic scenarios that should be tested:

Comment: Simulate an attack like the one carried out on September 11th [PC5, M018-1].

Analysis: The NRC is working with the NEI Emergency Preparedness and Security Working Group to establish guidelines for integration and demonstration of emergency responses to terrorist events, including preparation and conduct of integrated drills exercising Emergency Response Organizations' response to a range of terrorist events. The task force developed draft guidelines during the first quarter of 2005, followed by four industry tabletop drills and two pilot drill demonstrations to be completed by mid-2006. Lessons learned from these drills will be used to improve guidelines for industry use, and for internal site reviews, training, and future drills.

Comment: Events in which a large number of affected people have been injured and contaminated [PC5].

Analysis: Every nuclear power plant licensee has an agreement with local hospitals to handle a multitude of contaminated, injured personnel. The readiness and capability of these facilities is evaluated as part of the biennial exercise process. Additionally, these medical facilities usually maintain written agreement or understanding with medical facilities in neighboring towns, cities, and, in some cases, States for mutual support. In case of an event where a large number of individuals may be radiologically contaminated, immediate mutual assistance from neighboring States and Federal government is expected to be sought.

Comment: Events in which agencies measure response times, specifically for the transportation of dependent populations [PC5].

Analysis: DHS regularly evaluates plan elements related to the transportation of transport dependent populations.

Comment: An event involving a significant self-evacuation or “shadow evacuation” [PC5].

Analysis: A recent study of 230 evacuation incidents completed by Sandia National Laboratories (NUREG-6864, “Identification and Analysis of Factors Affecting Emergency Evacuations,” dated January 2005) stated that large-scale evacuations of greater than 1,000 people occur approximately once every 2 weeks in the United States. While none of these evacuations were associated with an incident at a nuclear power plant, the NRC staff believes the conclusions of the study would apply to a nuclear power plant incident involving evacuation of the public. The study found that, in general, shadow evacuations (people evacuating outside of the designated evacuation area) did not have significant impact on traffic or on the efficiency of the evacuation.

Comment: An examination of whether latchkey children will be protected in the event of a radiological emergency [PC5].

¹³NUREG-0654, Evaluation Criterion N.2.e.

Analysis: The protection of latchkey children is addressed in Section 12.3.5 of this document.

Comment: The NRC should test fast-breaker exercises [PC5, PC8, M042-1].

Analysis: The NRC regulations require prompt notification¹⁴ by licensees to offsite authorities. DHS is currently in the process of considering enhancements to their oversight for potential fast-breaking radiological emergencies.

7.1.5. Lessons Learned

Comment: One commenter suggested that there should be a strong “lessons learned” component to the exercise program [PC5].

Analysis: The inclusion of an effective critique process has long been required by NRC. Regulations require that drills and exercises be evaluated for weaknesses and that identified weaknesses (lessons learned) be corrected.¹⁵ In addition, such lessons-learned are typically shared among licensees and OROs as part of industry and DHS-sponsored forums and workshops. As an example, in October 2004, the NRC issued Regulatory Issue Summary (RIS) 2004-15 to licensees, in which it outlined staff observations and good practices involving the EP/Operations component of force-on-force exercises.

Comment: A commenter stated that the Federal Bureau of Investigation (FBI) participated in a nuclear power plant exercise, and the State learned that law enforcement groups like the FBI may not necessarily be familiar with nuclear power. This State learned that the various agencies involved in an emergency response need to be educated about nuclear power plant operations [M014-1].

Analysis: Generally, the local FBI office does interface regularly with nuclear power plant licensees. However, this particular drill identified a weakness in these interactions, and this has been subsequently corrected. Identification of such weaknesses is an important part of the drill and exercise program. The interest of agencies such as the FBI is with physical plant layout emergency and security response rather than actual nuclear power plant operations.

7.2. Radiological Emergency Response Training and Resources

Comments: Two comments questioned the adequacy of radiological protection gear and training for first responders in the counties surrounding nuclear power plants. These comments urged that emergency workers have sophisticated protective gear, and that they receive the necessary training [PC1, PC5]. One commenter suggested that until communities are properly equipped, emergency workers “should be advised to cover all exposed skin, no shorts or short-sleeved shirts.” This commenter also stated that emergency workers should stockpile Tyvek suits, boots, gloves, 3-M type masks, and KI [PC5].

Analysis: OROs identify emergency workers (EW) who will be called upon to respond to nuclear power plant emergencies that could potentially affect those offsite. Depending on the nature of tasks EWs will perform, training is provided on the use personal protective gear, such as self-reading and permanent record dosimeters, anti-contamination (anti-C) suits, gloves, booties, and a thyroid-blocking agent. Training is also provided for those EWs who may be expected to wear other gear, such as respirators and masks, under certain conditions. The

¹⁴ 10 CFR 50, Appendix E, Section IV.D.

¹⁵ 10 CFR 50, Appendix E, Section .IV.F.2.g.

stockpiling and storage of and the use requirements to this gear are generally addressed in plans and procedures. Potassium iodide (KI) is stockpiled and provided to EWs in accordance with the policy of the State in which these EWs respond to emergencies. DHS reviews these plans and procedures and evaluates their implementation during exercises.

Comment: A commenter stated: “Emergency responders, including school teachers, are required to have training — [10 CFR] 50.47(a), (b). What percentage has received training each year? Is it sufficient that they have only been offered training, but not taken it? Is there, or should there be, a fixed percent of each category or responder (fire, police, [department of public works] DPW, Harbor/Beach personnel, teachers, nursing/group home workers, bus drivers, etc.) that must receive training in each calendar year for the local plan to be in compliance?” [PC5].

Analysis: The number of individuals to be trained is included within the scope of the ORO training program described in DHS-approved State emergency plans.¹⁶ The number of individuals trained is generally determined by the size of the population within the plume exposure pathway EPZ. The adequacy of the number of individuals trained and performance of the assigned function are evaluated by DHS during exercises and also by review of the annual letter of certification.

Comment: A commenter asserted that the public should not assume that nuclear power plant employees know how to respond to emergencies. In some cases, turnover is very high, and there is no “historical continuity” among the staff [M009-1].

Analysis: Regulations¹⁷ require that emergency plans contain a program for training for responders. These regulations specify that the training program for members of the onsite emergency organization will include, in addition to classroom training, practical drills to ensure that ERO personnel are familiar with their duties. The Performance Indicator system (PI)¹⁸ requires participation in drills and exercises for key personnel to ensure ongoing familiarity with emergency response. In addition, employees and contractor personnel receive general employee training initially and on an annual basis thereafter as part of licensee site-access requirements.

7.3. Reactor Oversight Process/Performance Measurements

Comments: The NRC received several comments regarding its Reactor Oversight Program (ROP) (see footnote 17) and the performance measurements given to nuclear power plants after emergency preparedness exercises. The commenters generally agreed that the rating system does not accurately reflect the significance of performance deficiencies [PC1, M017-1, M028-1].

Analysis: The performance indicator (PI) system is intended to provide oversight of the emergency response program and not a detailed evaluation of drill performance deficiencies. Drills and exercises are intended to be training opportunities which serve to identify weaknesses and allow the licensees to correct them. The PI system reflects this. The NRC will take these comments into consideration in its ongoing review of EP regulations and guidance.

¹⁶ 44 CFR 350.12

¹⁷ 10 CFR Part 50, Appendix E, Section IV.F.2.

¹⁸ A detailed description of the Reactor Oversight Program is available at: <http://www.nrc.gov/reactors/operating/oversight/rop-description.html#pi>.

Comment: One commenter provided the following example: “I’ve read inspection reports that said had this been an actual event the finding might have been yellow or red, but just because it was an exercise, it’s green or white.” The commenter called this practice “grade inflation” [PC3, M028-1].

Analysis: Drills and exercises are training opportunities. Mistakes during drills or exercises are collected by the PI system and as long as the weaknesses are corrected, there are no items of noncompliance. There is a difference in significance of a mistake during a training evolution as compared to a similar mistake during an actual event. Failure to implement EP elements during an actual event would likely be an item of noncompliance.

Comment: A commenter suggested that DHS publish a set of specific standards with which exercises are evaluated [PC5].

Analysis: The DHS exercise Evaluation Areas¹⁹ were published in the *Federal Register* in April 2002, and specifically state the criteria against which exercises are evaluated.

7.4. Offsite Exercises and Drills

Comment: A commenter asked why offsite drills are not taking place more often [M025-1]. A commenter asserted that biennial exercises are not sufficient. Instead, there should be quarterly drills and annual exercises [PC5].

Analysis: The NRC believes that the required frequency is appropriate. Current NRC regulations²⁰ require biennial onsite and offsite full-participation exercises. However, there are drill and training opportunities in addition to the required biennial exercise. NUREG-0654 specifies the need for periodic drills by the licensee and State and local OROs.²¹ These include an annual medical emergency drill, periodic communications drills, annual radiological monitoring drills, and semiannual health physics drills to ensure that adequate emergency response capabilities are maintained during the interval between the biennial exercises. During these drills, licensees shall enable any State or local government located within the plume exposure EPZ to participate in the licensees’ drills when requested.²²

Comment: A commenter suggested that exercises assess how long it takes for emergency officials to travel to EOCs [PC5].

Analysis: DHS evaluates the ability of offsite response organizations to mobilize emergency personnel and activate facilities in a timely manner.

Comment: A commenter suggested that ORO response be assessed if EOCs are transferred to a more distant location [PC5].

Analysis: There are many reasons, other than security-based events, as to why an alternative EOC would be required. Provisions for relocating to alternate EOCs should be included in the

¹⁹ <http://fema.gov/doc/rrr/rep/repfrn0425.doc>.

²⁰ 10 CFR 50, Appendix E, Section IV.F.2.b. and c.

²¹ NUREG-0654, Planning Standard N.

²² 10 CFR 50, Appendix E, Section IV. F.2.e.

State and local offsite REP plans in accordance with current federal guidance.²³ DHS evaluates facilities, such as alternate EOCs, in accordance with the Evaluation Area 1.b.1, if they are new or have substantial changes in structure or mission.²⁴

Comment: A commenter stated that exercises should involve independent experts to monitor and evaluate the exercises [PC5].

Analysis: The statutory authority for exercise inspections reside with the NRC and DHS. DHS maintains a network of trained experts to evaluate offsite EP. The NRC relies on its highly trained and skilled inspectors, as well as subject matter experts to lead the NRC evaluation of onsite EP.

Comment: A commenter also suggested that local, State, and Federal elected officials, public interest group representatives, and members of the public should be involved in exercises to serve as evaluators, observers, and players. In addition, DHS should train these individuals in exercise evaluation [PC5].

Analysis: Local, State, and Federal officials are involved in exercises as observers and players because they are responsible for protective actions for the public. Members of the public are not involved in the protective action decisionmaking process and are not chosen as players. Members of the public are provided the opportunity to attend a post-exercise public meeting, announced 7 – 10 days in advance of the exercise, where DHS will provide preliminary results of the exercise criteria demonstration by the exercise participants and organizations.

DHS has specific criteria for an individual to qualify as an “exercise evaluator” which includes training on DHS’s Interim REP Manual. To become a DHS exercise evaluator, individuals may directly contact their Federal Emergency Management Agency (FEMA) regions for directions and instructions. Individuals wishing to qualify as an exercise evaluator for a specific organization or functional cell should communicate their desire with their local emergency management organizations.

8. Accident Assessment

8.1. Radiation and Effluent Monitors

Comment: The NRC received one comment which asked if the emergency alert notification procedures would be different for effluent discharges, chemical spills, or other nontraditional scenarios [M009-1].

Analysis: The procedures used to notify the public would be the same however the content of the message would be tailored to the event or non-traditional scenario where necessary. The procedures to notify OROs under the licensee’s emergency plan do cover events that exceed the thresholds identified in the emergency action levels (EALs). This would include effluent discharges, the effects of toxic or flammable gases, and other plant hazards.

Those potentially hazardous events, which do not, or are not, expected to exceed the specified EAL threshold, would be reported outside the licensee’s emergency plan in accordance with applicable Federal and State laws.

Comment: A commenter noted that detection instruments should be frequently calibrated, nationally standardized, and operated by specially trained staff [M014-2].

²³ NUREG-0654, Evaluation Criterion H.3.

²⁴ <http://fema.gov/doc/rrr/rep/repfrn0425.doc>.

Analysis: NRC regulations²⁵ require that the licensee shall ensure that instruments and equipment used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation being measured.

NRC/DHS guidance specifies that each onsite and offsite organization shall make provisions to inspect, inventory, and operationally check, emergency equipment/instruments at least once per quarter and after each use. The guidance also states that calibration of equipment shall be at intervals recommended by the supplier of the equipment.²⁶

Both onsite and offsite radiological monitoring teams and radiological analysis personnel are trained.²⁷

NRC regulations²⁸ also require that personnel dosimeters be calibrated to National Institute of Standards and Technology (NIST) traceable sources at a specified frequency.

Detection instruments required per the licensee's technical specifications (e.g., effluent radiation monitors) have specific operability requirements. These instruments are calibrated, maintained and used by trained plant staff and contractors under licensee procedures.

9. Emergency Communications

Comments: The NRC received one comment from a single State agency regarding emergency communications. First, the comment stated that the "single biggest failure during emergency events has been communications." It suggested that the NRC needs to organize a subgroup to consider available communication channels that can be established between nuclear power plants, Federal agencies, and State, local, and tribal governments. Some of the suggested communications media are computer networks, net-to-phone, and burst communications. The comment also suggested that advances in communications technology should be considered. For example, information can be shared over the Internet on blogs or Web sites. Further, there may be Web-based systems to show radiation levels in various locations [PC7]. Some commenters addressed communications compatibility. One commenter asked if all emergency responders have adequate communication systems to respond to a radioactive release [PC1]. Two commenters noted the importance of emergency responders having interoperable communication systems [PC5, M022-1]. Two commenters described issues related to a potential terrorist attack including coordinated communications between the utility and law enforcement [M024-1, M002-1].

Analysis: NRC/DHS guidance specifies that each organization should establish reliable primary and back-up means of communications for licensees, local, and State response organizations. Also, such systems should be selected to be compatible with one another.²⁸ The NRC staff agrees that the opportunity exists to improve information sharing due to advances in communications technology and will consider this comment in the review of EP regulations and guidance. The NRC is also evaluating on a continuing basis technological improvements for its Operations Center and Regional Incident Response Centers.

²⁵ 10 CFR 20.1501(b).

²⁶ NUREG-0654, Evaluation Criterion H.10.

²⁷ NUREG-0654, Evaluation Criterion O.4.c.

²⁸ 10 CFR 20.1501(c).

²⁸ NUREG-0654, Evaluation Criterion F.1.

As part of its ongoing Comprehensive Review starting with commercial nuclear power plants, DHS is evaluating inter-agency/organization communication capabilities and will provide recommendations upon completion of its review for all key infrastructures. DHS also is coordinating existing Federal funding for improvements in offsite emergency responder communications.

Comments: One commenter suggested that there should not be a hierarchy of notification among Federal, State, and local agencies [M044-1]. Another commenter suggested that NRC and DHS could help coordinate the order in which various governmental organizations are notified of events, since essentially everyone wants to be notified at the same time [M009-1].

Analysis: NRC regulations require that emergency plans provide for the notification of Offsite Response Officials within 15 minutes²⁹ and that the NRC be notified within 1 hour of declared emergencies.³⁰ For security events, NRC regulations require immediate notification to Local Law Enforcement Agencies (LLEA)³¹. The NRC is exploring automated notification system that could notify all communication points simultaneously.

9.1. Abbreviated Notification to NRC

Comments: Many commenters questioned the necessity of an abbreviated notification to the NRC within 15 minutes of the discovery of an event. The comments expressed concern that the requirement would result in rushed classification assessments and the number of unverified false alarms would reduce emergency response times in the event of a real situation. Other comments questioned the NRC's motivation for early notification since other plant's emergency procedures should be operable without NRC intervention [PC3, PC4, PC7, M015-1, M049-1, M033-1, M027-1].

Analysis: The abbreviated notification to NRC is a security event notification and not notification of an emergency classification. The latter notification is required not later than one hour to NRC and 15 minutes to OROs after declaration of the emergency. The purpose of security notification is to activate Federal response and notify other facilities of the potential for a coordinated attack. In addition, abbreviated notification to the NRC would only be required for a small subset of security events — specifically, those events considered to pose an imminent threat. This will minimize the potential for false alarms. Abbreviated NRC notification may initiate Federal response under the National Response Plan (NRP). The current regulations of one hour notification do not support this effort.

Comments: Some commenters supported abbreviated notification only after assessment and classification had verified the event. A comment suggested changing the guideline to notification 15 minutes after “declaration.” One commenter stated that NRC notification within 15 minutes should be written into regulations [PC7, M015-1, M049-1, M014-1, M033-1].

Analysis: To effectively notify other potentially impacted facilities, it is important for the NRC to be notified within 15 minutes of discovery and not declaration, since waiting for emergency declaration could add additional time to the notification process. Rulemaking on this issue is in progress. The status of the rulemaking can be monitored on the NRC Website at: <http://ruleforum.llnl.gov/cgi-bin/rulelist?type=prule>.

²⁹ 10 CFR Part 50 Appendix E, Section IV.D.

³⁰ 10 CFR 50.72(a)(3).

³¹ 10 CFR 73.55(h)(4)(iii)(B).

Comment: A commenter questioned the ability of the NRC to verify an abbreviated notification from a facility [M027-1].

Analysis: The NRC is currently exploring options for enhancements to existing verification of notifications.

9.2. Abbreviated Notification of OROs

Comments: Many commenters advocated ORO notification to precede notification of any other agency, including the NRC. Overall, the roundtable participants agreed that a 30-minute window for ORO notification was unacceptable [PC8, M011-1, M014-1, M007-1, M035-1].

Analysis: These comments will be considered as part of the ongoing review of EP regulations and guidance for potential changes to ORO notifications.

Comment: Two commenters suggested notifying OROs in conjunction with the NRC, within the 15-minute deadline [PC7, M011-1]. One commenter suggested the State Police Office of Emergency Management or other local agencies could most effectively share notification alerts within the other State-level OROs [PC7].

Analysis: The NRC is exploring automated notification system that could notify all communication points simultaneously. These comments will be considered as part of the ongoing EP Review and the NRC will further engage stakeholders to obtain additional input on this topic.

9.2.1. Coordinating Communications across Agencies

Comments: Some commenters stated concern that communications be coordinated between and among onsite officials, offsite agencies, and central command center operations [M006-1, M007-1, M019-1, M044-1]. Two commenters noted a shared responsibility between licensees and local law enforcement to be aware of any temporary emergency responders, such as the National Guard, already patrolling the area [M009-1, M007-1].

Analysis: The NRC and DHS agree with the need for specific and coordinated communications between and among the licensee and OROs. The NRC's abbreviated notification would be limited to site name, a brief description of the nature of the event, and, if determined, emergency classification.

In addition to the notification of OROs for an event classification, the licensee is also required to inform LLEAs upon detection of abnormal presence or activity of persons or vehicles.³² This notification to LLEAs is normally performed by the licensee's alarm station, rather than the licensee's control room. During a security event, the licensee's security alarm station would coordinate initial incident command and LLEA response onsite per the licensee's Physical Security Plan, including with National Guard personnel already patrolling site areas.

9.2.2. Sharing Sensitive Information

Comments: Many commenters noted the importance of licensees sharing safeguards information with States. Several commenters suggested that states need to be responsible for maintaining safeguards information [M024-1, M020-2, M013-2, M034-2, M007-2, M030-2]. Other commenters suggested that provisions for how sensitive information will be shared should be included in EP plans, such as requiring secure phone lines in all power plants and

³² 10 CFR 73.55(h)(4)(iii)(B).

that information sharing between Federal agencies, the licensee, and OROs must occur in a timely manner, regardless of information sensitivity level [M003-1, M019-2, M003-2, M036-2].

Analysis: The NRC works diligently to share sensitive information with licensees, other Federal agencies, and State, local, and tribal governments to enhance protection of the public. The NRC must balance its commitment to openness with the recognition that some key information is sensitive and could be misused. We have developed internal guidance on providing sensitive security information to appropriately cleared personnel from State, local, and tribal organizations. We are also verifying recipient information to ensure timely distribution of information that may impact offsite response.

NRC regulations³³ require that any person, including the NRC staff and licensees, shall ensure that Safeguards Information is protected against unauthorized disclosure. However, NRC regulations³⁴ also recognize that a member of a State or local law enforcement authority that is responsible for responding to requests for assistance during safeguards emergencies has an established “need to know” the information, and he or she may access Safeguards Information. During an emergency, there is protocol on the release of certain sensitive information if the result of that transfer of information is important to the protection of the public.

9.3. Simultaneous Communications

Comments: Two commenters suggested simultaneous communications to NRC and OROs should be required in EP plans and they questioned if sufficient manpower exists to address the simultaneous notifications that need to occur. The commenters suggested backup positions within the power plant to follow up and ensure that primary notification has occurred to all agencies [M024-1, M044-1]. Other commenters stressed the inefficiency of having several people designated to notify offsite agencies and noted that this would not lead to simultaneous communications [M024-1, M037-1]. Some commenters stated the desire for use of the most advanced available technologies in order to streamline simultaneous communications and address the problems noted above [PC7, M024-1, M044-1].

Analysis: The NRC staff has engaged stakeholders on this issue via a generic communication with licensees, at various industry and REP conferences, and, most recently, at the August 31 – September 1, 2005, public meeting on EP regulations and guidance. As part of the ongoing EP Review, the NRC is evaluating whether changes are required to its regulations for a security-related event. The NRC also is exploring options to expedite the prompt notification of OROs. This may include changes to onsite staffing guidance if adequate technological means are not available to support ORO communications.

9.4. Model Public Messages

Comments: One commenter suggested that a “small group of communication experts and emergency planners should craft some specific ‘model’ messages, and try them out on some focus groups” and referenced the New York Academy of Medicine study “Redefining Readiness” [PC7]. Another commenter noted that communications among response agencies should be further coordinated and standardized with the information given to the public, particularly in downwind communities requiring sheltering or evacuation [PC1].

³³ 10 CFR 73.21(a).

³⁴ 10 CFR 73.21(c)(1)(v).

Analysis: The NRC requires³⁵ that the content of initial and follow-up messages to response organizations and the public be established. NRC and DHS guidance³⁶ specifies that written messages intended for the public should be consistent with the licensee's classification scheme and give instructions with regards to protective actions to be taken by occupants of affected areas. It is the NRC staff's expectation that licensees, in conjunction with State and local OROs, would re-evaluate these messages as part of periodic plan reviews to enhance effective communications with the public.

10. Alerting Methods

Comments: There were several general comments about public alerting systems. These comments suggested that there should be redundancy in warning systems and that a combination of systems should be funded by the licensee and/or DHS [PC5, M019-1]. Commenters asked what alternatives exist for public alerting and if DHS must review changes to public alerting systems prior to implementation [M002-2].

Analysis: NRC regulations require³⁷ that licensees have the ability to notify the public, but leave the decision on the actual methods of notification to the licensees and local response organizations. Local conditions vary not only between States but within States. The responsibility for installation, operation and maintenance of notification systems is also determined on a case by case basis. Any significant changes to existing systems must be reviewed by DHS prior to implementation.

The majority of public alerting in areas within the plume exposure EPZ is accomplished with sirens³⁸. Another common public alerting method is the use of tone alert radios. Route alerting (the use of police, fire, or rescue vehicles and personnel to alert individual households, either by a vehicle's public address or siren system or by individually contacting members of a household) is also used as a primary notification method in some areas and is used as a back-up method should the primary method malfunction in other areas.

10.1. Siren Systems and Backup Power

Comments: The NRC received many comments about siren systems and the need for backup power. Of the comments received on this topic, most stated that backup battery power is necessary and should be required by the NRC. Some of these commenters suggested that the sirens include voice messages, too. These commenters urged the NRC that backup power and voice messages be implemented immediately [PC1, PC10, PC3, PC5, PC8, M002-1, M017-1, M022-1, M038-1, M037-1, M018-1, M049-1].

A commenter asked whether all sirens are in working order and have a battery backup [PC5].

Analysis: The NRC acknowledges that local conditions vary not only between States but within States. The most effective methods for public alerting should be developed at the local level to address a community's specific needs.

In October 1985, DHS published a *Federal Register* notice (see 50 FR 43084) announcing the availability of FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for

³⁵ 10 CFR 50.47(b)(5).

³⁶ NUREG-0654, Evaluation Criterion E. 1.

³⁷ 10 CFR 50.47(b)(5).

³⁸ FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants."

Nuclear Power Plants.” In that notice, DHS addressed a public comment that called for backup power. DHS also noted that due to electric power grid interconnections, the loss of normal power to a significant number of sirens would most likely occur with a power outage covering the entire EPZ. Such large power losses are infrequent and are usually caused by adverse weather conditions. Since nuclear power plant general emergencies are extremely unlikely, the likelihood that these two events will occur simultaneously is extraordinarily small. A power outage may prompt many people to turn on their battery-powered radios in an attempt to determine the cause. DHS currently is currently working on a document to identify requirements for and provide guidance on backup power to public alerting systems.

With regard to the comment as to whether all sirens are in working order, functional and operational status is checked periodically for all sirens within the plume exposure EPZ. DHS considers the operability of a siren system acceptable when the average of 90 percent of the sirens (as determined by a simple average of all regularly conducted tests) can be demonstrated functional over a 12-month period. The NRC, through performance indicators (PIs) under its ROP, specifies that siren reliability should remain at least 94 percent during any operational test. In most cases, the reported percentage is higher than 94 percent.

10.2. Other Suggestions

Comments: The NRC received a comment which suggested that the “NRC should research all commercially available methods for alerting the public and provide a report of their findings, noting the pros and cons of each method.” The commenter states that this would provide State, local, and tribal governments with valuable information to help them choose the best and most appropriate public alerting technology [PC7].

Analysis: Currently, Civil Preparedness Guide (CPG) 1-17, “Outdoor Warning Systems Guide,” dated March 1980, provides guidance on various methods of alerting the public. Admittedly, it is recognized that the document is outdated by today’s technological advances. DHS was directed, via House Report 107-740, to update CPG 1-17. The House Report specified that the update to CPG 1-17 “shall reflect the benefits of using voice technology to address all natural and man-made hazards, including acts of terrorism, and shall require that all warning systems be operable in the absence of AC power.” The DHS update to CPG 1-17 will provide information beneficial to those considering methods to alert the public. It is anticipated that this revised guidance will be available later in 2006.

11. Notification Methods

11.1. Radios

Comments: Two commenters suggested that low frequency radios are an option for public notification. This type of radio can be heard when driving through a tunnel. One commenter also suggested that these radios be installed on buses and vans for those people that are dependent on public transportation [PC5, M022-1].

Analysis: NRC regulations³⁹ require that licensees have the ability to notify the public, but leave the decision on the actual methods of notification to the licensees and local response organizations.

11.2. Call-back Service/Use of 911 in Reverse

Comments: The NRC received five comments regarding notification through call-back service/use of 911 in reverse. Three commenters suggested that a telephone-based, early,

³⁹ 10 CFR 50.47(b)(5).

rapid notification system should be considered [PC5, M022-1, M049-1], while two commenters noted drawbacks with the system [M019-1, M044-1].

Analysis: NRC regulations⁴⁰ require that licensees have the ability to notify the public, but leave the decision on the actual methods of notification to the licensees and local response organizations. It is not the intent of EP regulations and guidance to mandate a specific method for public notification, but rather to allow the flexibility for the licensee, in conjunction with State and local OROs, to identify the appropriate method or combination of methods based on site-specific characteristics and demographics.

11.3. Loss of Power

Comments: The NRC received one comment regarding the effect of losing power on public notification systems. The commenter asked how residents will know whether to evacuate or seek shelter if there is a loss in communication [PC1].

Analysis: State and local emergency plans establish a method of backup alerting to be implemented in the event the primary method fails. DHS was directed, by House Report 107-740, to update existing guidance to address the operability of warning systems in the absence of AC power. Also, see the information provided in Section 10.2 above.

11.4. Other Suggestions

Comments: Some commenters suggested that notification systems need to be upgraded so that first responders are not relied upon for notifying the public during an emergency. Although this practice is included in some emergency plans, these commenters asserted that emergency workers will be dealing with other activities during a response [PC1, PC5, M022-1, M002-1].

The NRC received comments about the importance of reader boards on major highways. One of the commenters suggested that DHS funding could be used to establish permanent message boards around an EPZ [PC5, M022-1]. Two commenters urged the NRC to place the definition of notification in a regulation. Specifically, this commenter asked that the definition identify where notification must be heard (inside and outside) [M022-1, M018-1].

Analysis: NRC regulations⁴¹ require that licensees have the ability to notify the public but do not specify the methods of notification that licensees and local response organizations must use. Local conditions vary not only between States but within States. The most effective methods for public alerting should be developed to address these specific needs. As stated by a DHS representative during the public meeting, DHS is looking into alternative public notification systems with the Federal Communications Commission (FCC). The NRC noted the request for a definition of notification in regulations and will consider it as part of the review of EP regulations and guidance.

12. Protective Response

12.1. Onsite Protective Actions

12.1.1. Warning and Advising Onsite Individuals

Comments: A commenter suggested that NRC and licensees need to account for incidental employees (e.g., laundry or catering service employees) that may be onsite during an

⁴⁰ 10 CFR 50.47(b)(5).

⁴¹ 10 CFR 50.47(b)(5).

emergency. The commenter mentioned that some precaution needs to be taken for these individuals [M009-1].

Analysis: NRC regulations and guidance⁴² specify that the licensee shall provide for protective actions for all onsite personnel in the event of a site or general emergency.

12.1.2. Evacuating Onsite Individuals without Emergency Assignments

Comments: The NRC received a comment regarding the evacuation of onsite individuals. Currently, personnel gather together in a group to account for everyone after an evacuation. The comment stated that “secondary explosions may be designed to occur as first responders are converging on the scene of an incident.” Therefore, the commenter suggested that NRC may want to reconsider the method used to account for onsite personnel [PC7].

Analysis: The 2002 Order directed licensees to consider changes to protective measures implemented during a security event. Changes implemented by licensees include deferral of assembly and evacuation until areas are secure.

12.1.3. Other Onsite Protective Response Suggestions

Comments: The NRC received two comments regarding informed consent of employees during an emergency. One commenter stated that “workers must give their informed consent before undertaking potentially hazardous manual actions during security-initiated events like they must do before undertaking manual actions in high radiation areas” [PC3]. Another commenter responded with uncertainty about how this requirement would be implemented and “how would we capture the statistical health effects and brief personnel in this instance” [PC4].

Analysis: The 2002 Order directed licensees to consider changes to protective measures implemented during a security event. Changes implemented by licensees generally defer fielding response teams, such as damage control and survey teams, until areas are secure. It is also possible that priority actions could be accomplished under armed escort. NRC/DHS guidance⁴³ specifies the licensee and State and local organizations should make provisions for a 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident. In addition, each organization should also make provisions for distribution of dosimeters, both self-reading and permanent record devices.

12.2. Mitigative Actions

12.2.1. Emergency Lighting

Comment: A commenter stated that 10 CFR 50.48, Appendix R, “requires plant owners to install emergency lighting for manual actions taken in response to a fire.” The commenter suggested that emergency lighting is needed for security-based actions, as well. Specifically, the comment states that “Emergency lighting must be provided in all areas where preplanned manual actions are needed as well as along access routes to/from those areas” [PC3].

Analysis: Emergency lighting (battery power) is required⁴⁴ in all areas of the plant needed for operation of safe shutdown equipment and in routes to and from the equipment for at least

⁴² 10 CFR 50.47(b)(10) and Evaluation Criteria J. 1 through 6 of NUREG-0654.

⁴³ 10 CFR 20.1502.

⁴⁴ 10 CFR Part 50, Appendix R, Section III. J.

eight hours. Security-related regulations⁴⁵ require that all exterior areas within the protected area shall be provided illumination sufficient for the monitoring and observation requirements as specified in the regulation. Also, security-related regulations⁴⁶ require that personnel equipment that shall be readily available for individuals whose assigned contingency security job duties, as described in the licensee physical security and contingency plans and include, among other items, a flashlight and batteries and night vision aids (i.e., hand-held illumination flares or equivalent).

12.3. Offsite Protective Actions

Comments: The NRC received general comments about offsite protective actions. One commenter stated that planners have failed to consider: (1) chaos as a likely response to an emergency declaration, (2) the loss of evacuation roadways, (3) damage to critical infrastructure by a radioactive release, and (4) abandonment of emergency planning positions by parents trying to get to their children [PC2].

Other commenters suggested the NRC should develop guidance which focuses on State, local, and offsite emergency responders' decisionmaking [PC9, M040-2].

Analysis: The NRC conducted a study of evacuations in the US and published NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations," dated January 2005. The study revealed that large-scale evacuations in the United States are very effective in saving lives and reducing injuries associated with hazards. In the study, 230 evacuation incidents involving at least 1,000 people were evaluated and none involved widespread chaos as indicated by the comment. In fact, the public behaved rather well and generally followed direction from authorities.

It is recognized that a normal reaction would be for emergency workers to ensure their families are cared for and this may impact their response time. However, the study cited above showed that emergency workers report for duty in sufficient numbers to perform their assigned tasks.

Loss of infrastructure, such as roads that support evacuation routes, is routinely practiced during drills and evaluated by DHS, generally on a biennial basis.

Current guidance to assist State and local response organizations with decisionmaking relative to protective actions is contained in NUREG-0654/FEMA-REP-1, Rev.1, Supplement 3, "Criteria for Protective Action Recommendations for Severe Accidents." Implementation of this guidance by decisionmakers is evaluated every 2 years. However, the NRC will consider these comments as part of the ongoing review of EP regulations and guidance.

12.3.1. Licensee Protective Action Recommendations

Comments: The NRC received many comments about initial protective action recommendations from licensees. The majority of the comments received addressed NRC's endorsement of NEI's White Paper from May 2004. Some commenters stated that the endorsement of an initial protective response in the "keyhole" area (2 miles around a nuclear power plant, and 5 miles downwind) is equivalent to a reduction in the emergency planning zone [M018-1, M018-2].

⁴⁵ NUREG-0654, Evaluation Criterion K.3.a.

⁴⁶ 10 CFR Part 73, Appendix B, Section V.A.5.

Analysis: The NEI White Paper restates and summarizes parts of the NRC and DHS guidance⁴⁷ on protective action recommendations. RIS 2005-08, which endorses the NEI guidance, states “The NEI guidance summarizes some of the published Federal guidance, but does not replace the Federal guidance.” It does not reduce the size of the EPZ. The guidance states that the 2- and 5-mile keyhole is the initial minimum recommendation for protective actions in the event of a general emergency. There is no “equivalent reduction in emergency planning zone” as stated in the comment. Subsequent analysis, dose projections and survey measurements may identify the need to expand the initial protective actions to additional areas.

Comment: A commenter asked about the timing of the NEI White Paper and NRC’s endorsement [M002-02].

Analysis: During an inspection at a nuclear power plant that was prompted by the NRC’s ROP process, an inconsistency among other plants related to the interpretation of the Federal guidance (Supplement 3, “Criteria for Protective Action Recommendations for Severe Accidents,” to NUREG-0654, the protective action guidelines in EPA-400, etc.) was identified. As a result, the NRC issued RIS 2004-13, “Consideration of Sheltering in Licensee’s Range of Protective Action Recommendations” to clarify existing regulations and guidance. In response, industry developed the White Paper “Range of Protective Actions for Nuclear Power Plant Incidents,” which summarizes existing guidance on protective action recommendations, and requested NRC endorsement. The White Paper translates the Federal guidance into an implementation approach. NRC endorsed the proposed implementation approach in RIS 2005-08.

Comment: A commenter suggested that endorsement of the NEI White Paper is “largely about saving money for the industry not about saving lives” [PC6]. Two commenters were critical of the endorsement and called for the NRC to rescind its endorsement [M017-2, PC8].

Analysis: The NEI White Paper restates and summarizes parts of the NRC and DHS guidance.⁴⁸ It does not reduce requirements and is protective of public health and safety.

However, it should be noted that the NRC is reviewing its guidance for protective action recommendations. Changes in the guidance are being considered. If changes are made, they will be made at the direction of the Commission and with the opportunity for public comment.

Comment: Some commenters suggested that the keyhole guidance is irresponsible [M022-1, M022-2, M002-2, M017-2]. Several commenters noted that NRC should be planning for the worst case scenario, not the best case scenario, as represented by the keyhole protective action recommendation [M009-2, M022-2, PC5, PC6]. A commenter asked the NRC to identify and make public the technical analysis NRC used to determine how depositions of radioactive plumes and deposition and source term were to be of no initial concern for initial actions beyond the keyhole area [PC10]. Two commenters requested that planning and targeting resources based on the “keyhole” theory be removed from emergency plans [PC5, PC6].

Analysis: The NRC guidance is not planning for a best-case scenario and is the proper response to an unlikely but serious accident. NUREG-0396/EPA 520/1-78-016, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,” (NUREG-0396) states that atmospheric accidents could result in the occurrence of fatalities and injuries. However, doses in excess of threshold levels for significant early health effects (about 200 rems to the whole body) are generally confined to areas much closer to the plant. Therefore, given an atmospheric

⁴⁷ Supplement 3, “Criteria for Protective Action Recommendations for Severe Accidents,” to NUREG-0654.

⁴⁸ Supplement 3, “Criteria for Protective Action Recommendations for Severe Accidents,” to NUREG-0654.

accident, reasonable authorities should concentrate their immediately available resources on limiting the life-threatening doses to individuals in closer areas. NUREG-0396 goes on to state that within 5 miles of the reactor, evacuation appears to be more effective in reducing the number of early health effects than sheltering, as long as the delay time is kept sufficiently small. In implementing this guidance, the staff chooses the downwind sectors within 5 miles and the 2-mile ring to be the areas most at risk and hence the focus of initial protective actions.

The NRC guidance for protective action recommendation is being reviewed as part of the ongoing EP Review.

Comment: A commenter stated that the utility should not be responsible for issuing a protective action recommendation when the county has the best information [PM9].

Analysis: The licensee can only issue a protective action recommendation; the State and local authorities make the protective action decision and this is based on the “best information” available.

Comment: A commenter suggested that “shrinking the zone” is meant to help old reactors as they seek relicensing [PC6]. This comment asserted that reactors located in densely populated areas will appear to have adequate emergency preparedness plans if the emergency planning zone is based on the keyhole.

Analysis: There has been no effort by NRC to shrink the plume exposure pathway EPZ; it remains an approximate 10-mile radius zone⁴⁹ around the plant. EP plans remain in place for the entire 10-mile plume exposure EPZ.

12.3.2. Radiation Monitoring

Comments: Several commenters suggested that there should be additional monitoring capabilities around nuclear power plants. A commenter suggested that monitoring devices are the only means to ensure that responders do not enter an excessively radioactive area [PC1]. Another commenter stated that key emergency responders should be provided with radiation detection devices, like NukAlerts or RadAlerts [PC5].

Analysis: NRC regulations and guidance⁵⁰ specify that nuclear power plants provide for the radiological protection of onsite emergency responders. Generally, this is accomplished through radiological surveys and distributing dosimeters to emergency personnel. Federal guidance⁵¹ provides for radiological protection of offsite responders including dosimetry, survey meters, and personnel monitoring.

Comment: A commenter suggested that radiation detecting devices be distributed to all schools and other sheltering facilities [PC1].

Analysis: NRC and DHS guidance⁵² provides for the protection of schools through protective actions. Generally this is accomplished through early closure of schools and evacuation of the students. Radiation detection devices are generally not distributed to schools, but are often

⁴⁹ 10 CFR 50.54(s)(1) and 10 CFR 50.47(c)(2).

⁵⁰ 10 CFR 20.1501, 10 CFR 20.1201, 10 CFR 20.2106, 10 CFR 50.47(b)(11), and NUREG-0654, Evaluation Criteria J.1 through 6 and K.1 through 7.

⁵¹ EPA 400 Chapter 2.5 and NUREG-0654, Evaluation Criterion K.3.

⁵² NUREG-0654, Evaluation Criteria J.7, 9, 10 and 12.

available to emergency workers who drive evacuation buses. In any case, they would add little to the protective action strategy for schools, as early evacuation is normally the strategy used. However, such devices are generally present at sheltering and congregate care locations.

Comment: Two commenters stated that there should be real-time radiation and weather monitors in nuclear power plant communities [PC5, M017-1]. One commenter suggested that these monitors should be linked to State and local authorities. Another commenter urged the NRC to require independent monitoring so emergency responders have reliable data about where the plume and radiation are going.

Analysis: Some nuclear plant sites in the United States have real time radiation monitoring and all have real time weather monitors (meteorological towers.) However, NRC/DHS do not require this because independent radiological monitoring teams from the county, State, and the plant, which are specified in NRC/DHS regulations and guidance,⁵³ are better able to assess the path of a meandering radiological plume than a fixed monitoring system. The NRC will consider these comments in the ongoing review of EP regulations and guidance.

12.3.3. Potassium Iodide

Comments: The NRC received many comments that addressed KI.

One commenter stated that KI's effectiveness was well-established in science and stated that "value of KI is well settled science" [PC8]. Another commenter mentioned that NEI was downplaying KI's "demonstrated effectiveness" [M018-1].

Analysis: The NRC recognizes that KI may be useful, under certain conditions, to reduce the risk of thyroid cancer as the result of exposure to radioactive iodine from a nuclear power plant accident. DHS guidance⁵⁴ specifies that States should consider the use of KI as a supplement to shelter and evacuation in the unlikely event of a severe nuclear power plant accident.

Comment: A commenter expressed that NRC is acting negligently by "not making a concerted effort to properly and fully distribute KI to potentially affected residents" and insisted that NRC ensure that KI is "in the hands of all residents and schools within 20 miles." [PC8].

Analysis: DHS changed its guidance⁵⁵ in 2001 to specify that States consider incorporating KI into its range of protective actions. The NRC and DHS recognize that States are the best authorities to decide which are the appropriate protective measures for their populations, recognizing that each State and each plant site within each State are unique in many ways.

The 10-mile plume exposure EPZ is protective of the population at greatest risk of exposure to radiation and radioactive materials. Protective measures are in place for these populations. Beyond the 10-mile EPZ, exposure to radioactive iodine is primarily through the milk ingestion pathway. Protective measure such as food interdiction, are in place for these populations out to 50 miles. The recently published IAEA Chernobyl Forum report⁵⁶ states that ingestion of contaminated milk was the primary cause of thyroid cancers in children in the regions

⁵³ 10 CFR 50.47(b)(8) and (b)(9), and NUREG-0654, Evaluation Criterion I.7.

⁵⁴ NUREG-0654, Planning Standard J. and Evaluation Criterion J.10.f.

⁵⁵ NUREG-0654, Planning Standard J. and Evaluation Criterion J.10.f.

⁵⁶ "Chernobyl's Legacy: Health, Environmental and Socio-economic Impacts and Recommendations to the Governments of Belarus, the Russian Federation and Ukraine," Chernobyl Forum, September 2005, published by the International Atomic Energy Agency (IAEA).

surrounding the Chernobyl plant. The National Academy of Sciences report on the Use and Distribution of Potassium Iodide⁵⁷ stated that food interdiction is a more effective preventative strategy for internal exposure pathways.

Comment: A commenter urged that each member of a household in affected areas should immediately receive 10 potassium iodide (KI) pills and suggested that the NRC is responsible for KI distribution — not State and local officials — because NRC regulates nuclear facilities [PC8].

Analysis: The NRC recognizes the role of potassium iodide as a supplemental protective action.⁵⁸ In appropriate circumstances, KI can provide additional protection. The prophylactic use of KI does not lend itself to across-the-board solutions. Therefore, the NRC has chosen to leave such decisions to State and local emergency response planners to determine the need for KI as a supplemental protective action in their community and how it shall be incorporated. The NRC provides the States, that have chosen to use it, with KI tablets for those within the 10-mile EPZ as a supplement to sheltering and evacuation.⁵⁹ When an individual has evacuated, they will no longer be exposed to significant quantities of radioactive iodine. When taken at the appropriate dosage and time, the thyroid is effectively blocked preventing further uptake of radioactive iodine. Any iodine consumed after the thyroid is blocked is rapidly removed from the body. Two tablets provide approximately 48 hours of protection to the thyroid gland.

Comment: There were several comments about the Bioterrorism Act, Section 127. Several commenters suggested that it was negligent that the provisions in the law have not been implemented, and its mandates should be implemented immediately [PC5, PC8, M022-1]. Specifically, one commenter asked why HHS has not developed a program for distribution of KI [for areas that are] 20 miles out from a nuclear power plant, as required by the law. The commenter blamed NRC for stalling this effort [M022-1].

Analysis: Implementation of Section 127 of the Bioterrorism Act is the responsibility of the Department of Health and Human Services (HHS). Section 127 specifically requires the National Academy of Sciences study expanded distribution and issue a report. This report was issued in January 2004. HHS has drafted and published for comment guidelines on the expanded distribution of KI to 20 miles from commercial nuclear power plants. The decision on how to implement Section 127 of Public Law 107-188 is the responsibility of the President of the United States.

12.3.4. Sheltering

Comment: The NRC received many comments on the general topic of sheltering. Several commenters urged the NRC to develop a clear definition of sheltering [PC7, M033-1, M016-2, PM7]. One commenter stated that many actions can be called sheltering, so the public needs clear instructions when advised of this protective action [PC7].

In addition, commenters suggested that the public and local officials need to be educated about the basic principles of sheltering. One commenter stated that the public needs to be informed about the tools they will need in their home to shelter effectively [PC2].

⁵⁷ Distribution and Administration of Potassium Iodide in the Event of a Nuclear Incident (2004) Board on Radiation Effects Research (BRER)/National Academy of Sciences(NAS).

⁵⁸ 10 CFR 50.47(b)(10).

⁵⁹ 66 *Federal Register* 5427, 5433 (January 19, 2001).

Analysis: The NRC and DHS staffs agree that the definition of sheltering and sheltering guidance in general can be enhanced. As the staffs continue their ongoing review of EP regulations and guidance, they will consider these related comments.

Comment: Several commenters addressed the need to consider sheltering as a protective action for close-in communities. Some commenters stated that sheltering has been underplayed by the NRC, but the public may be better off sheltering in the event of a radiological release [PC1, PC2, M002-1]. Another commenter disagreed and stated that sheltering in place is not a substitute for evacuation [PC8].

Analysis: NRC guidance includes sheltering as an appropriate protective action in response to some accident scenarios. To emphasize the use of sheltering, the NRC-issued RIS 2004-13, "Consideration of Sheltering in Licensee's Range of Protective Action Recommendations"; RIS 2004-13, Supplement 1; and RIS 2005-08, "Endorsement of Nuclear Energy Institute (NEI) Guidance: Range of Protective Actions for Nuclear Power Plant Incidents." These documents discuss the role of sheltering in protective action recommendations. These documents can be found on NRC public Web site:
<http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/>.

Comment: Several commenters addressed the issue of effective shelters. In particular, one comment asked what provisions are in place to assure that plumes will not penetrate school buildings (including temporary trailers) [PC1]. Another commenter suggested that when sheltering is called for, schools should be locked-down so doors cannot be opened to let radiation inside [PC5]. Another commenter stated that EPZ shelters must be analyzed for dose reduction capabilities [PC5]. A commenter also asked "at what distance from the reactor site" are shelters to be located [PC6].

Analysis: Plumes will penetrate standard buildings over time. Sheltering is not intended to be a long term protective action within the boundaries of a radiological plume, but sheltering is protective when used to avoid a lengthy period out of doors and in a plume, when a plume is passing rapidly and in some other circumstances. However, the NRC and DHS staffs agree that the definition of sheltering and sheltering guidance in general can be enhanced. As the staffs continue their ongoing review of EP regulations and guidance, they will consider these related comments. Relocation centers are used for initial contamination monitoring by State and local responders and NRC and DHS guidance⁶⁰ states that these centers are to be located at least 5 miles, and preferably 10 miles, beyond the boundaries of the plume exposure EPZ.

Comment: A commenter suggested that masks should be considered for use inside shelters to further reduce radiation exposure [PC5].

Analysis: The use of masks to reduce exposure is considered in Federal guidance.⁶¹ Respiratory protection, such as masks, is primarily for emergency workers, particularly those involved with response to the power plant site.

Comment: A commenter suggested that DHS should be looking for large reception centers in which to shelter people [M022-1]. One commenter stated that large reception centers should be developed for use in emergencies. The individual also stated that centers to decontaminate emergency workers should be outside peak fatal zones (approximately 20 – 25 miles away) [PC5].

⁶⁰ NUREG-0654, Evaluation Criterion J.10.h.

⁶¹ EPA 400-R-92-001 (EPA-400).

Analysis: Reception centers are essentially temporary staging locations set up along evacuation routes. These facilities may provide radiological monitoring of evacuees, provide special information to evacuees, direct evacuees to the proper mass care/shelter facilities, and register people who have left their homes. States should have the capability to monitor and decontaminate the 20 percent of the population allocated to the facility within 12 hours.⁶² DHS guidance⁶³ specifies that adequately sized reception centers are to be established to receive people who have evacuated the EPZ. These centers are located outside the planning zone and some are as far away as 20 – 25 miles. These centers are regularly exercised and periodically evaluated. The concept of the “peak fatal zone” of 25 miles is not considered a valid planning tool and is not used in commercial nuclear power plant EP.

Comment: One commenter requested that the NRC endorse NRC Supplement 3, “Criteria for Protective Action Recommendations for Severe Accidents,” to NUREG-0654 [PC8].

Analysis: The NRC and DHS staffs note that Supplement 3 remains a “draft report for interim use and comment.” This issue will be further examined for enhancement via the ongoing review of EP regulations and guidance.

12.3.5. Broadcast Monitoring/Heightened Awareness

Comments: The NRC received several comments in response to its question regarding having a separate definition to describe the recommendation to “go indoors and monitor the emergency alert system” during a general emergency. The NRC received two comments that cautioned against using “go indoors” in the recommendation. This might be confused with sheltering. Instead, the commenters suggested using only “monitor EAS” [M036-1, PM8].

One comment stated that the recommendation would not be effective unless affected populations are educated and made aware of the value behind the recommendation [PC3]. Another comment stated that the protective action recommendations for a site area emergency should not change [PC4].

Another commenter noted that the recommendation for use of heightened awareness could have tremendous value. The commenter suggested that this recommendation would reduce the number of voluntary evacuees, and make the evacuation process easier for those that are recommended to evacuate. The commenter also stated that a heightened awareness recommendation would be transparent and “could bring tremendous public confidence” [PC7].

Analysis: As an alternative to the terms suggested by the commenters, the use of the terminology “Heightened Awareness” or “Heightened Preparedness” as a protective action to the public is being considered. The staff believes that it could be useful in some potential accident scenarios. However, it is understood that public education would be necessary to effectively implement the action. Additionally, a significant public information effort while the event was in progress would be necessary for the warning to be effective. The NRC will consider these recommendations as part of the ongoing review of EP regulations and guidance for enhancement.

12.3.6. Evacuation

Comments: The NRC and DHS received many comments regarding evacuation plans. Some commenters stated that safe evacuations will not be possible in the event of a radiological release, and as a result people will be left behind [PC8, M002-1]. One commenter expressed

⁶² Interim REP Program Manual, August 2002; Evaluation Area 6.a.1.

⁶³ Interim REP Program Manual, August 2002; Evaluation Area 6.a.

that evacuation failures are a result of increasing populations [PC8]. Another commenter stated that the public is concerned that they will not be able to evacuate safely, so the NRC should be honest and inform the public that there may be problems with evacuations [PC1].

Analysis: NRC conducted a study of evacuations in the US and published NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations," dated January 2005. The study revealed that large-scale evacuations in the United States are very effective in saving lives and reducing injuries associated with hazards. The study identified 230 evacuation incidents involving at least 1,000 people, and several of the evacuations involved much larger numbers of people. All of them were successfully completed, although areas for improvement were identified in some. The NRC will review lessons learned from recent hurricane evacuations as the results become available.

It is very unlikely that an evacuation due to a nuclear power plant accident will ever be necessary, but should it be, it is possible that problems will be encountered. Periodic exercises simulate these kinds of problems and evaluate response organization decisionmaking to overcome them. Protective action decisionmaking is evaluated and judged every 2 years at commercial nuclear power plants.

Comment: There were also many comments about transportation during an evacuation. One commenter asked if provisions are in place to provide fuel for evacuating vehicles [PC1]. Another commenter urged that community emergency management agencies establish letters or memoranda of understanding with service stations, so they stay open 24 hours a day during emergency evacuations [PC5].

Analysis: NRC and DHS will consider this comment in the ongoing review of EP regulations and guidance.

Comment: A commenter stated that transportation providers should be required to mobilize at the alert stage of an emergency so evacuees can be transported out of the area. Similarly, this individual expressed that buses should not be shared among communities within an EPZ; a community should have exclusive use of their own buses [PC5].

Analysis: Many offsite response organizations do mobilize early. However, this is a site-specific decision, as is the disposition of local resources such as buses. It should also be noted that dozens of alerts have been declared over the past 2 decades without escalation to a higher level event. Complete mobilization during these events would have been counterproductive.

Comment: A commenter suggested that evacuation routes should be marked with standardized, permanent signs [PC5].

Analysis: Many communities have chosen to do this and the routes are also indicated in the annual evacuation information provided to the public within EPZs. However, the decision is best made by State or local governments.

Comment: One commenter asked specific questions about preparedness at schools. One comment asked if schools within EPZs have evacuation or sheltering plans in place currently [PC1]. The commenter also asked if schools in the EPZ have onsite transportation for all children to leave in one trip [PC1].

Analysis: State and local government emergency plans for the 10-mile EPZ include schools and other special populations. There is no requirement that all school children be evacuated in one trip. The number of vehicles required for a timely evacuation of schools, whether in one trip or multiple trips, depends on the school population and is determined by the schools in consultation with the OROs. Generally, OROs have plans and procedures in place to carry out

timely evacuation consistent with the availability or prearrangement of transportation means. For an optimal use of available transportation assets, State and local governments may carry out precautionary earlier evacuations of schools based on weather conditions, shelter availability, availability of transportation assets, risk of evacuation versus risk from the avoided radiation dose, and other such factors. Under such situations, involved OROs may implement contingency protective measures.

Comments: Several commenters suggested that latchkey children would not be able to evacuate themselves [PC8, PC1, PC5]. Two comments recommended that all schools and facilities for vulnerable populations have the following available for all individuals in case of an emergency: “turnout” gear or protective clothing, full face air purifying particulate respirators (masks), and KI [PC1, PC5].

Analysis: Students who may be at home alone after school are included as part of the “special population” when evacuation and/or sheltering is being considered, provided the residence is located within the plume exposure pathway EPZ. The responsibility for ensuring the availability of protective measures to offsite populations, including special populations, rests with State and local governments and other OROs. The use of protective devices mentioned would not be appropriate for members of the public or children. KI may be distributed if the State has deemed it appropriate and has developed the supporting plan elements.

Comments: There were several comments regarding evacuation time estimates (ETEs). A commenter asked, “Have you determined that there is a problem with updating and use of ETEs?” [PC7]. The commenter also asked whether there are tools available to update evacuation time estimates on a more frequent basis than once every 10 years, based on U.S. Census data. Other commenters suggested that ETEs are based on outdated data that underestimate populations [PC8, PC10]. Two comments advocated requiring licensees to take into account future population changes when creating or updating their EP plans [PC8, M025-2].

Analysis: The NRC recently published NUREG/CR-6863, “Development of Evacuation Time Estimate Studies for Nuclear Power Plants,” dated January 2005. This document provides updated guidance that addresses advancements in new technologies that support evacuation time estimate development. The practice is that when significant increases in population are experienced the ETE is updated. The NUREG provides methods for taking into account shadow evacuations.

The NRC issued RIS 2001-16, “Update of Evacuation Time Estimates,” on August 1, 2001, to remind licensees of the need to review census data for the year 2000, determine if significant increases or decreases in EPZ population took place, and to update their ETEs to support the needs of local decisionmakers. These comments will be considered in the ongoing review of EP regulations and guidance.

Comment: One commenter urged the NRC to incorporate analysis resulting from the mass public evacuations preceding Hurricanes Katrina and Rita into “Development of Evacuation Time Estimate Studies for Nuclear Power Plants” (NUREG/CR-6863) and “Identification and Analysis of Factors Affecting Emergency Evacuations” (NUREG/CR-6864) [PC10].

Analysis: The NRC will review lessons learned from recent hurricane evacuations as the results become available.

Comment: A commenter noted that public transit and school bus funding shortages may reduce the timeliness of an evacuation [M002-1].

Analysis: DHS reviews and evaluates offsite EP and plans, including transportation, on a periodic basis to ensure that there is reasonable assurance that the plans can be implemented.

12.3.7. Emergency Planning Zone Size

Comments: The NRC received several comments stating that the impact of a major event will affect areas well beyond the 10-mile EPZ [PC5, PC6, M022-1]. Some commenters suggested expanding the EPZ to include communities further from the nuclear power plant in the emergency planning process [PC5, PC6, M022-1]. One commenter suggested that NRC consider three planning zones (0 – 10 miles, 10 – 20 miles, and beyond 20 miles) with different protective action plans for each zone [PC5].

Analysis: The NRC and DHS have determined that the 10-mile and 50-mile EPZs are protective of public health and safety, and are quite conservative.⁶⁴ However, the planning infrastructure within the zones would provide for expansion of response efforts, in the extremely unlikely event that protective actions beyond the existing boundaries are necessary.

12.3.8. Other Offsite Protective Response Suggestions

Comments: The NRC received many general comments on protective actions and emergency plans. Specifically, one commenter stated that “neither the NRC nor the utilities believe that nuclear power plants can be damaged to the point that there will be a major radioactive release and that an immediate evacuation or sheltering will be necessary for the public” [PC2].

Another commenter suggested that emergency planning should be designed to prevent human suffering (from cancer, disease, and genetic damage), not simply death [PC5].

Analysis: Emergency plans are a defense-in-depth measure and are prudent for the protection of public health and safety in the unlikely event of a serious nuclear plant accident. EP requirements are established and regularly inspected despite the unlikely nature of accidents that would require plan implementation.

The protective action guides⁶⁵ consider the need to avoid unnecessary radiological exposure of the public and set the decision points for evacuation well below the thresholds known to cause health effects.

Comment: The NRC also received a comment about requirements for protecting foodstuffs and drinking water supplies in the 50-mile ingestion exposure pathway. The comment stated that these requirements need to be met to address the likelihood of contamination [PC8].

Analysis: NRC regulations and NRC and DHS guidance⁶⁶ provide the means to protect foodstuffs and drinking water within the 50-mile ingestion exposure pathway from radiological contamination. An ingestion pathway exercise is conducted periodically to test and evaluate these plans.

Comments: The NRC received several comments regarding community resources. One commenter asked whether emergency providers have (1) adequate communication systems, (2) necessary equipment, and (3) funding to address radioactive releases [PC1]. Another commenter stated that Federal and State planners cannot assume that equipment, supplies, and personnel can be shifted between EPZs within the same State. The commenter cited September 11th where there were multiple attacks. The commenter also suggested that communities should not move their emergency response resources to another nearby

⁶⁴ NUREG-0654, Section I.D.

⁶⁵ EPA 400, Table 2-1.

⁶⁶ 10 CFR 50.47(b)(10) and NUREG-0654, Evaluation Criterion J.11.

community in the event of a nuclear disaster. In the commenter's opinion, each community should be prepared or rely on a community that is not threatened by a nuclear power plant incident [PC5].

Analysis: NRC regulations and NRC/DHS guidance⁶⁷ states that provisions for communications among responders should be established. The response organizations are self-sufficient up to a certain level of emergency. Thereafter, assistance from an ever widening circle of support organizations can be requested. Help may be requested from neighboring counties, the State, and even neighboring States. If an entity determines it cannot help, the request will go to another entity. The Federal government deploys assistance resources as needed.

Comment: The commenter asked: "The authority for each governmental agency is clearly defined in statute. What has led you to the conclusion that the responsibilities need clarification?" The commenter also suggested that the NRC convene a group of licensees, States, locals, and tribal officials to answer the question of whether or not governmental agency responsibilities need to be clarified [PC7].

Analysis: The NRC and DHS agree that the statutory authority for each governmental agency is clearly defined. However, input is being sought relative to federal guidance related to the development of protective action recommendations by the licensee and decision-making at the State/local level. For example, current federal guidance does not specify whether the licensee and/or State/local organizations should be responsible for considering impediments to evacuation.

The purpose of the public meeting and future outreach efforts on the part of NRC and DHS staffs is to engage stakeholders so that any proposed changes to EP regulations and guidance can be fully vetted, the impact on State, local, and tribal organizations understood, and alternate methods identified (where possible) to reduce unnecessary regulatory burden.

13. Medical and Public Health Support

13.1. Local Hospital and Medical Services

Comments: The NRC received three comments regarding hospital and medical services. One commenter asked if downwind medical facilities are equipped to handle contaminated personnel or residents in the event of a radiological release [PC1]. Similarly, another commenter recounted an experience at the Westchester Medical Center, near the Indian Point site. According to the comment, the trauma center was "swamped by one contaminated patient" that arrived for treatment. The commenter stated that this experience at a well-equipped medical facility "does not suggest that we are fully prepared to cope with a large-scale radiological event, whether it is caused by accident or malicious intent" [PC3].

Analysis: NRC regulations and NRC/DHS guidance⁶⁸ establish requirements and guidance for plans for one or more support hospitals that are capable of attending to contaminated injured personnel. These medical facilities must demonstrate their readiness and capability to DHS through what is known as "MS-1" drills (medical drills) at least once every 2 years. Additionally, these medical facilities maintain written agreements with neighboring medical facilities for mutual support.

14. Public Confidence

⁶⁷ 10 CFR 50.47(b)(6), and NUREG-0654, Evaluation Criterion F.1.b.

⁶⁸ 10 CFR 50.47(b)(12), and NUREG-0654, Evaluation Criterion L.1.

14.1. Sharing Information with the Public

Comments: The NRC received many comments regarding sharing information with the public. There were several comments about the way the NRC and utilities inform the public. One commenter stated that the utilities do not work with the public [M002-2]. Another commenter urged the NRC to do more to inform the public so affected populations are familiar with emergency preparedness and procedures [M011-1]. Also, a commenter suggested using annual assessment meetings to share information about emergency preparedness and any changes to an EP plan [PC3].

Other commenters stated that the NRC and industry share “good” news with the public, but withhold “bad” news and public confidence suffers [M018-2, M022-1, M044-1, M028-1, M003-1]. Instead, open lines of communication should be established with the public [M039-2, M011-2].

Analysis: A major goal of the NRC is to ensure openness in our regulatory process. The NRC acknowledges that, in the past, there has not always been effective sharing of information. In the post-9/11 environment, there are new considerations when sharing information. The NRC is continually looking for ways to improve our communications and enhance public confidence. To facilitate the desire for greater dialog on EP and planning, the NRC developed an outreach team in the Emergency Preparedness Directorate to reach out to stakeholders on issues related to EP.

Through the use of Agencywide Documents Access and Management System (ADAMS), many of the NRC’s internal documents are made available to the public. The NRC spends considerable resources on public involvement and values public input. Open communication with stakeholders and increased public confidence is an important goal to the NRC.

In addition, the NRC requires⁶⁹ that licensees periodically communicate information regarding the emergency plan to the population within the 10-mile plume exposure EPZ.

Comment: One commenter suggested that the NRC consider embedding journalists during an event to get first-hand information out to the public. The embedded journalist would report from the EPZ with the latest developments. The commenter suggested that this would minimize rumors from developing [PC7].

Analysis: The NRC will consider this suggestion in its ongoing review of EP guidance and regulations.

Comment: A commenter suggested that the media be used in a disciplined way [M049-1]. Another commenter stated that the media is the most effective way to disseminate information to the public [M011-2]. Also, one commenter cautioned against informing the media of an event too early. If the media is informed before the local government’s public information officer is ready, then the jurisdiction might be overwhelmed by media requests [M049-2].

Analysis: NRC regulations and guidance⁷⁰ require that emergency plans include provisions for dissemination of information to the media.

Comment: A commenter stated that communities should receive the letters and memoranda of understanding that jurisdictions execute with service providers (transportation, medical facilities, etc.), so the public is informed about emergency plans [PC5].

⁶⁹ 10 CFR 50.47(b)(7), and NUREG-0654, Evaluation Criterion G.1.

⁷⁰ 10 CFR 50.47(b)(7), and NUREG-0654, Evaluation Criterion G.5.

Analysis: This issue would be best addressed by contacting local emergency management officials.

Comment: Several commenters were concerned that the NRC issued bulletins without conferring with the public, specifically local planners [M033-1, M044-1, M049-1]. One commenter stated that the public input is rarely invited, and often ignored [PC1]. Other comments suggested that before issuing bulletins, NRC needs to reach out to locals and get their perspective early on in the process. These stakeholders can provide important information and have valuable experience [M044-1, M033-2].

Analysis: NRC Bulletins serve informational needs of the NRC and are not used as regulatory action vehicles to require regulatory actions of licensees. Specific to NRC Bulletin 2005-02, NRC requested that licensees provide information regarding already established plans or plan to address five areas pertinent to licensees' security-related EP programs. When the NRC issues regulatory guidance or regulations, stakeholders and the public are included in a public comment period and are solicited to offer insight and recommendations. Specific to the five areas discussed in the NRC Bulletin, these areas were discussed at the National Radiological Emergency Preparedness Conference in April 2005 and at several NRC region exercise scheduling meetings throughout 2005. ORO comments were received at these meetings and were considered in the information provided in NRC Bulletin 2005-02.

Comment: There were three comments regarding the safety parameter display system (SPDS) and the emergency response data system (ERDS). The commenters agreed that monitoring data of spent fuel pool conditions (e.g., level and temperature) should be included in the data, and shared with Federal, State, and local agencies [PC3, PC4, M008-1].

Analysis: The NRC will consider the suggestions regarding data on spent fuel pool conditions as part of its ongoing review of EP regulations and guidance.

14.2. Partnerships

Comments: The NRC received several comments that expressed the importance of partnerships. One commenter stated that a partnership among local law enforcement, emergency management agencies, State agencies, DHS, NRC, and the licensee are key to emergency planning [M019-2]. Another comment challenged NRC to demonstrate that it has welcomed the public in partnership [PC1]. Three State agencies suggested that all of the affected entities (States, NRC, DHS, and utilities) should work together to develop security-based enhancements to State and local RERPs [PC9].

Analysis: The NRC agrees that partnership between Federal, State, local officials and the public is important in the development and implementation of emergency plans. By holding the August 31 and September 1, 2006, public meeting, the NRC believes that it is demonstrating that partnerships are very important to effective emergency planning and response. In addition, the NRC plans to continue to share information with the public to foster public confidence.

14.3. Reasonable Assurance

Comment: The NRC received comments about the term "reasonable assurance." Several of these comments addressed the definition of "reasonable assurance." One commenter stated that the meaning of "reasonable assurance" and "adequate protection" must be defined and asked for the NRC to provide a clear definition [PC8].

Analysis: Following the initial approval of the emergency plans, the NRC and DHS routinely conduct evaluations of onsite and offsite radiological emergency plans. In approving the emergency plans, the NRC uses the 16 planning standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR 50, and DHS uses the 16 planning standards in NUREG-0654, FEMA-REP-1, Rev.1. Onsite and offsite emergency plans must meet these

standards and/or requirements to be approved by the NRC (onsite) and DHS (offsite). The NRC and DHS evaluate the demonstration of these plans biennially to assure compliance with regulations and standards. OROs certify to DHS that they have met the elements of their emergency plan in their annual letter of certification. All these activities and demonstrations establish the basis for determining existence of “reasonable assurance” of the protection of public health and safety.

Since the regulations in 10 CFR 50.47 use the phrase “adequate protective measures,” this comment response assumes that “adequate protection” and “adequate protective measures” are synonymous. The planning standards in 10 CFR 50.47 and the requirements in Appendix E to 10 CFR Part 50, were promulgated so that implementation of emergency plans that met those planning standards and requirements would provide adequate protective measures for emergency workers and the public. The planning standard most closely related to protective actions is planning standard 10 CFR 50.47(b)(10), which requires the licensee to develop a range of protective actions for the public. In developing this range of protective actions, the licensee is to consider evacuation, sheltering, and as a supplement to these, the prophylactic use of KI, as appropriate. The 12 Evaluation Criteria in Planning Standard G, “Protective Response” in NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” provide guidance on the contents of an emergency plan to meet the requirements of 10 CFR 50.47(b)(10).

Therefore, “adequate protective measures” means that emergency plans are in place that describe the response actions that will be taken to avoid radiation dose in the event of a radiological emergency. It should be noted that the word “adequate” as used in this context does not mean that the implemented response actions will result in no radiation dose. The role of a protective action is to avoid radiation dose.

Comments: A commenter asked by what measures do you implement the phrase “reasonable assurance” to certify a radiological emergency preparedness plan? The commenter also asked what percentage of the population has to be successfully evacuated to determine that there is “reasonable assurance” that the plan will be effective [M038-1]. Another commenter stated that to have “reasonable assurance” each town should see contracts between the State and transportation providers [PC5].

Analysis: Emergency plans receive initial approval, and the NRC routinely conducts inspection activities onsite; NRC evaluates the onsite plans, and DHS evaluates the offsite plans. In approving emergency plans, the NRC uses the 16 planning standards in 10 CFR 50.47 (b) and the requirements in Appendix E to 10 CFR Part 50, and DHS uses the 16 planning standards in NUREG-0654, FEMA-REP-1, Rev. 1. Onsite and offsite plans must meet these standards and/or requirements to be approved by the NRC (onsite) and DHS (offsite). Details are developed in the plans based on these standards. The NRC (onsite) and DHS (offsite) evaluate the demonstration of these plans biennially to assure compliance with regulations and standards. OROs certify to DHS that they have met the elements of their emergency plan in their annual letter of certification. The annual letter is a tool by which DHS collects this information. All these activities and demonstrations establish the basis for determining existence of “reasonable assurance” of the protection of public health and safety.

OROs maintain up-to-date information on population census and ETEs during normal and abnormal conditions for evacuation. OROs use these resources in optimizing the areas that need to be evacuated. Evacuating a percentage of the population within the plume exposure EPZ does not need to be demonstrated.

Comment: One commenter cited 10 CFR 50.47, which states that a finding of “reasonable assurance” is not necessary for renewals of nuclear power reactor operating licenses. The commenter asked why the NRC does not require another finding of reasonable assurance during the re-licensing process. The commenter suggested that over 30 years, the NRC is not taking account for increases in population density, changes in road infrastructure, etc., M038-1].

Analysis: A licensee's emergency plan is a part of the operating license⁷¹ for a nuclear power plant. EP is not considered within the scope of license renewal reviews conducted under 10 CFR Part 54 because EP is subject to continual oversight by the NRC. See 56 *Federal Register* 64,943, 64,966 (December 13, 1991). The Commission ensures through its regulations and required exercises, drills, and performance criteria that existing plans are adequate throughout the life of the plant, even in the face of factors like changes in demographics. EP is dynamic to account for the many changes that happen to an area over time. The NRC reviews licensee emergency plans and overall EP on an ongoing basis⁷² as part of the operating license of a plant. NRC inspection activities ensure that changes are incorporated into the plans. For example, after the 2000 census, the NRC sent licensees a Regulatory Information Summary⁷³ advising them to update their Evacuation Time Estimates if there had been significant demographic changes in the EPZs surrounding the plants.

14.4. Use of the Term "Dark Website"

Comment: A commenter asked the NRC to explain the concept of the "dark website" [M002-1].

Analysis: The "dark website" is properly called the Emergency Event Web Page and is accessible to the public in the event of an emergency. It is pre-populated with NRC Fact Sheets, Backgrounders, and links that would be necessary if an event were to occur. It is a tool to quickly communicate information to stakeholders. It has been referred to as a "dark website" because it is only available for public access in the event of an emergency condition.

Comment: A commenter pointed out that the "dark website" was perceived as something clandestine, when it is actually a good deed. This comment suggested that communication could be stronger to ensure that this misunderstanding does not happen again [M044-2].

Analysis: The NRC agrees that communication could be stronger regarding the Emergency Event Web Page and will work to improve such communications.

Comment: A commenter asked why the NRC staff did not go live with the "dark website" during the emergency declared at the Waterford nuclear power plant during Hurricane Katrina. The comment suggested that the NRC should "revisit the thresholds for activating its 'dark screen' public communications vehicle" [PC3].

Analysis: The decision to activate the Emergency Event Web Page is made by the Office of Public Affairs and depends on the size and potential public impact of the event. The intent of the page is to consolidate and provide:

1. Up-to-date information related to a significant event that has a potential for impact on the health and safety of the public and environment
2. Background and facts of immediate value to communities near the event
3. Background and facts of value to non-affected communities
4. Links to other important sites, including relevant Federal sites and State or local sites with information on evacuations and other protective measures
5. An archive of all event-related information, including press releases

⁷¹ 10 CFR 50.34(a)(10) and (b)(6)(v).

⁷² 10 CFR 50.54(q); 10 CFR 50.54(t); 10 CFR Part 50, Appendix E, Section IV. F. and G.

⁷³ RIS 2001-16, "Update of Evacuation Time Estimates."

The Waterford nuclear power plant responded to the weather event appropriately and at no time was the community around the plant in danger from a radiological release. Therefore, the information pre-posted on the Emergency Event Web Page was not necessary. However, based on a suggestion from the public, a Hurricane Update feature has been instituted on the Web site with up-to-date information about NRC actions related to hurricanes (and presumably other weather-related events). This was first initiated during Hurricane Rita and will be used again in the future, whenever appropriate.

14.5. Petition Process

Comment: Some commenters had questions regarding the NRC petition process [M038-1, M017-1]. A commenter stated that the NRC should show more respect for the petition process since advocacy groups spend hours preparing them. In this individual's opinion, the NRC routinely disregards petitions from advocacy groups [M017-1].

Analysis: Any member of the public may petition the NRC to develop, rescind, or change a regulation under 10 CFR 2.206. Upon receipt of a petition, the NRC publishes a notice of receipt of petition for rulemaking in the *Federal Register*, the NRC describes the contents of the petition and allows at least 75 days for public comment. At the conclusion of the comment period, the petitioner is sent a letter enclosing copies of any comments that have been received concerning the petition. The letter also states the initial target date for completion of NRC staff review of the petition.

Proposed rules and petitions are placed on RuleForum, NRC's collaborative rulemaking Web environment, when they are published in the *Federal Register* and the comment period opens, and are retained until the final rule is published. Background files on proposed rules and petitions are available for viewing or downloading from file libraries. Comments on the proposed rulemakings and petitions can be uploaded, as files, by members of the public in lieu of sending written comments to the NRC. Additionally, all final rules published in the *Federal Register* are maintained at RuleForum for 180 days after publication or the effective date, whichever is later.

Comment: A commenter submitted a copy of signed petitions that had been previously submitted to DHS requesting that DHS and NRC not certify the emergency evacuation plan for Indian Point [PC11].

Analysis: NRC staff evaluated the commenter's petition and determined that this petition was submitted to the FEMA Director on May 1, 2003. Because the subject matter of the petition is offsite EP, DHS was the appropriate agency to review this petition. DHS responded to the petitioner in a letter dated May 20, 2003. DHS subsequently provided their determination of reasonable assurance that the offsite preparedness for the Indian Point Emergency Center was adequate and stated its results in a letter to Governor Pataki on July 25, 2003.

15. Other Comments

15.1. Comments that Supported the Meeting

Comments: Many comments expressed appreciation to the NRC and DHS for holding the public meeting. One commenter called it "an important and strong beginning" [PC8, M049-2, M035-2, M011-2, M037-2, M033-2, M019-2, M044-2, M040-2].

Some commenters noted the diverse backgrounds of meeting participants, and thanked organizers for including local, tribal, State, media, advocacy, and industry representatives [PC2, PC7, M039-2, M011-2, M037-2].

Several comments thanked the facilitator for maintaining a productive and respectful dialogue. Additional comments credited the public meeting with the opportunity to interact and network with other emergency management officials [M003-1, PC2, M015-2, M037-2, M044-2].

Analysis: The NRC and DHS appreciate these comments regarding the conduct of the public meeting and intend to use them as guidance for future meetings.

15.2. Public Meeting Follow-up

Comments: Several commenters stated that the day-and-a-half meeting did not allow sufficient time to discuss the agenda issues thoroughly. Ten commenters proposed holding additional meetings in order to continue more in depth dialogue on these agenda issues and include additional, unresolved issues [PC8, M022-1, M027-2, M009-2, M008-2, M049-2, M035-2, M015-2, M019-2, M024-2].

Some commenters recommended the creation of an advisory council on emergency preparedness, which would meet on a regular or quarterly basis [PC12, M009-1, M009-2, M035-2]. A commenter suggested that the group meet in a variety of NRC regions [M019-2]. Two commenters noted smaller breakout groups could be used to leverage expertise on particular issues when needed [PC7, M035-2].

One commenter noted that further discussion was needed on the delegation of responsibilities between licensees, State, local, and tribal officials [M027-2].

Analysis: The NRC and DHS plan to hold additional meetings in order to continue more in-depth dialogue on these agenda issues and include additional, unresolved issues. The establishment of an advisory committee will be considered. Meetings with smaller groups on a regional basis will be considered to leverage expertise on particular issues. The NRC and DHS will announce public meetings in the *Federal Register* and on the NRC's Web site so that stakeholders can be kept informed.

15.3. Public Meeting Improvements

Comments: Several commenters expressed concern over the composition of the expert panel (roundtable). One commenter stated it was heavily weighted toward industry and local planners, while another commenter desired a larger DHS presence [PC12, M016-2]. Two commenters felt future meetings should include additional local representatives, particularly from the Indian Point community [PC5, PC8].

Analysis: The expert panel (roundtable) comprised six State government representatives, four advocacy group representatives, five Federal government representatives, four industry representatives, four local government representatives, and a tribal government representative. The NRC and DHS believe the composition of the panel was balanced and provided varying points of view which resulted in valuable input.

The NRC chose to use a "roundtable" format for this meeting in order to encourage more dialogue among the representatives of the affected interests than is normally possible at the typical "town hall" format meeting. The roundtable format also encourages discussion among the participants rather than presentations.

The NRC and DHS will continue to seek stakeholders input to enhance EP regulations and guidance. The exact forum in which the stakeholder input will be sought has not been decided at this time.

15.4. General Comments Regarding Rules and Guidance

Comments: The NRC received several comments regarding NRC rules and guidance, in general. Three commenters emphasized the continued use of regulatory changes instead of guidance, noting that while regulations are enforceable, guidance is not [M003-1, M022-2, M017-2]. In addition, two commenters noted using the idea of “functional equivalency” in industry-wide Federal regulations would allow local officials with needed flexibility [M007-2, M040-2].

Analysis: The NRC and DHS understand and appreciate the comments that emphasize the difference between enhancing regulations that are enforceable and enhancing guidance that describes one method that is acceptable to the NRC and DHS for meeting the regulations. However, regulations are frequently written in a general style to allow for site-specific implementation methods that are as good as or better than the methods described in guidance. The purpose of the public meeting and future outreach efforts on the part of NRC and DHS staffs is to engage stakeholders so that any proposed changes to EP regulations and guidance can be fully vetted, the impact on State, local, and tribal organizations understood, and alternate methods identified (where possible) to reduce unnecessary regulatory burden.

The NRC will consider these comments in its ongoing review of EP regulations and guidance.

Comment: A commenter stated that any NRC policy shift regarding the mix of guidance and regulation should be discussed in the public realm [M022-1].

Analysis: Public involvement in NRC’s activities is a cornerstone of strong, fair regulation of the nuclear industry. The NRC recognizes the public’s interest in the proper regulation of nuclear activities and provides opportunities for citizens to make their opinions known. The NRC seeks to elicit public involvement early in the regulatory process so that safety concerns that may affect a community can be resolved in a timely and practical manner. The regulatory process is considered vital to assuring the public that the NRC is making sound, balanced decisions about nuclear safety.

15.5. Local and State Government Funding Concerns

Comments: Three commenters expressed concern that local governments would not be able to provide adequate protection in the event of an emergency without Federal support [PC1, M044-1, M022-2]. Two commenters articulated frustration with the number of unfunded mandates in emergency planning [M017-2, M044-1].

Analysis: Emergency preparedness and response begin at the local level. The responsibility to fund State and local response planning for radiological, as well as other emergency events, rests with State and local governments as part of their traditional police powers and obligations under State constitutions and laws and local charters to provide for the public welfare. The role of the Federal government is to provide emergency response planning assistance and, when requested, to provide support to the States when State response resources are exceeded during an emergency.

The National Response Plan was developed by the Department of Homeland Security (DHS) to facilitate appropriate response from the Federal government under a variety of conditions. Additional Federal support is available through the DHS REP staff, who are dedicated solely to the long-established REP Program and directly related missions.

15.6. Other Miscellaneous Comments

Comment: A commenter stated concern over the reliability of a report by Mr. James Lee Witt [M016-2].

Analysis: The NRC has reviewed the Witt report and we continue to affirm that our emergency planning basis is valid. We seek to enhance the requirements as is appropriate with the

dynamic nature of EP. On February 21, 2003, DHS issued its report on the September 2002 EP exercise at Indian Point which addresses a variety of planning issues including DHS's conclusions regarding concerns raised in the Witt report.

Comment: A commenter stated concern that any nuclear accident or terrorist attack will have economic ramifications in both the host State and the nation as a whole [PC1].

Analysis: A terrorist attack on a nuclear power plant — or any infrastructure target in the United States — will have far-reaching ramifications locally as well as on the State and the nation. The NRC, DHS, FBI, and others are working together to reduce the risk that terrorists would succeed in targeting a commercial nuclear power plant and causing harm to the public and the environment. Since 9/11, the 2002 Order was issued by the Commission to all operating nuclear power plant licensees to implement compensatory security measures for the current threat environment and also required licensees to take actions deemed appropriate to ensure continued improvements to existing emergency response plans. The NRC staff has been working closely with numerous Federal agencies (including DHS, the Department of Defense, the Department of Homeland Security, the Department of Energy, the Federal Bureau of Investigation, and the Federal Aviation Administration), as well as with State governments, to enhance the security of nuclear facilities and activities.

The NRC has boosted security measures in the current threat environment, but its longstanding safety and security program has always been “all hazard” focused. The consequences of a terrorist attack, for example, are the same as a safety-related accident, and the actions of the plant operators and NRC officials are the same as well: protect public health and safety and the environment from radiation hazards. An integrated approach to safety and security is the ideal and the best possible way to ensure commercial nuclear power plants continue to generate power without negative consequences to their local communities.

Comments: Four comments expressed concern that current guidance focuses heavily on security-initiated events and should take into account all possible hazard incidents [PC5, M011-1, M018-1, M044-2].

Analysis: NRC Bulletin 2005-02 reflects the security component in EP. Actions to cope with other hazards, such as high winds, hurricanes, are already addressed in a licensee's plans and procedures, as well as the radiological the emergency plan.

Comment: One commenter expressed concern that a clearinghouse for independent scientific research being done on EP issues does not exist [M011-2].

Analysis: There are many independent scientific bodies, such as the National Academy of Sciences that study issues related to EP.

Comments: Two commenters addressed maintaining appropriate staffing levels at the site [M024-1, PC12].

Analysis: In general, the NRC does not regulate nor monitor the size of the total workforce at nuclear facilities. However, the NRC does regulate and monitor the number of operators needed to operate the facility (10 CFR 50.54(m)). The only time the NRC may become involved in workforce size is when the cause of an event could be proven or is suspected to be a result of the size of the workforce.

Conclusion

On August 31 and September 1, 2005, the Emergency Preparedness Directorate conducted a public meeting, in coordination with DHS, to discuss selected topics for the review of EP regulations and guidance for commercial nuclear power plants and to obtain stakeholder input. The NRC agrees that stakeholder insight and input to EP programs are valuable. In the future, the NRC will actively seek stakeholder comments and involve DHS in coordinated activities to address the issues raised in the public meeting comments. The staff has organized and prepared responses to all of the comments provided during and after the meeting. The NRC staff will post this document on the meeting Web site and make it available in ADAMS.

As the NRC staff continues its review of EP regulations and guidance for commercial nuclear power plants, the staff will draw on the comments identified above. The staff will continue to seek stakeholder input as the review continues.

Should the staff review identify the need for rulemaking, NRC and DHS will provide additional opportunities for stakeholder input.

Appendix A. Public Meeting Participants

	NAME	ORGANIZATION
1.	Tracy Vardas	San Luis Obispo County
2.	Lane Hay	Bechtel/Power
3.	Diane Coffin	PPL Susquehanna, LLC
4.	Doug Pickett	NRC
5.	Paul Sears	STPNOC
6.	Kirsi Alm-Lytz	NRC
7.	R. D. Mothena	FPL
8.	Paul B. Eccard	Town of Waterford, CT
9.	R. Savio	NRC
10.	S. Frant	NRC
11.	Michael Griffin	Maryland Department of Emergency Management
12.	Teresa Valentine	NRC
13.	Michael Jamgochian	NRC
14.	David I. Cornelius	NRC
15.	Daniel Fruchter	NRC
16.	Jason C. Zorn	NRC
17.	Ray Lorson	NRC, Region I
18.	M. Banic	NRC
19.	Sally A. Billings	NRC
20.	John Costello	Dominion
21.	Amy E. Hinger	VDEM
22.	M. Mashhadi	FPL
23.	Jocelyn Mitchell	NRC
24.	Alan Rae	United Kingdom, NII
25.	Greg Haas	Congresswoman Lois Capps
26.	Paul Mitchell	Senator Barbara Boxer
27.	Lynne Fairobent	AAPM
28.	Eric Weiss.	NRC
29.	Tony Gody	NRC

	NAME	ORGANIZATION
30.	Joseph Zimmerman	Transcore
31.	Russell Barnes	NRC
32.	Roberta Warren	NRC
33.	Donna M. Perez	NRC
34.	Cathy Marco	NRC
35.	Greg Werner	NRC
36.	Marlayna Vaaler	NRC
37.	Kelly Ralston	ICF
38.	Bruce Rodin	Ambex, Inc.
39.	Mohammad Shuaibi	NRC
40.	Trish Conrad	NEI
41.	Naomi Halpern	Olsson, Frank & Weeda
42.	Mike Layton	NRC
43.	Alan Madison	NRC
44.	Mollie Rock Zuccato	NRC
45.	Soichiro Nishimori	Japan's Independent Institute
46.	Elizabeth Gormsen	ICF Consulting
47.	Shawn Smith	NRC
48.	Henry Gordon	Oconee County, SC EMA
49.	Betsy Keeling	NRC
50.	Roy Zimmerman	NRC
51.	Rochelle Becker	Alliance for Nuclear Responsibility
52.	Dan Rose	Delaware E.M.A
53.	Kathy Hassett	AZ Director of Emergency Management
54.	Elgan H. Usrey	Tennessee EMA
55.	Joe Greenlee	ICF Consulting
56.	Betty Serepca	NRC
57.	Patricia Deddins	The Day (newspaper) CT
58.	Carol Harris	NRC
59.	Shannon Rindfleisch	Prairie Island Indian Community

	NAME	ORGANIZATION
60.	Ed Hackett	NRC
61.	Jeremy Tapp	NRC
62.	Kevin O'Sullivan	NRC
63.	Melvyn Leach	NRC
64.	Gary Lima	Tennessee EMA
65.	James Ogden	TX Governor's Div. of Emergency Management
66.	Denise Bundy	Orange County, CA Emergency Management
67.	Barry Marks	TVA
68.	Miriam Cohen	NRC
69.	Art Warren	NRC
70.	Patrick Mulligan	CRCPD
71.	David Leever	Polester Applied Technology
72.	Richard Rosano	NRC
73.	Gary Detter	Constellation
74.	Marsha Ward	NRC
75.	Shyrl Coker	NRC
76.	Yen-Ju Chen	NRC
77.	Vernon Higaki	First Energy
78.	John McKinnon	NRC
79.	Jill Lipoti	NJ Department of Emergency Preparedness
80.	Frank Mousca	Kansas Emergency Management
81.	Tony Lipuma	NRC
82.	Thelma L. Wiggins	NEI
83.	Paul Gunter	NIRS
84.	Suzanne Leta	NJ PIRG
85.	Elizabeth Berger	Rockland County
86.	Jenny Weil	McGraw-Hill
87.	Christopher Jensen	Rockland County
88.	Alan Nelson	NEI
89.	Stephen Payne	NCEM

	NAME	ORGANIZATION
90.	Jon Christiansen	NJSP, Office of Emergency Management
91.	Edward J. Weinkan	NMC
92.	Greg Casto	NRC
93.	Brian Ashbrook	Southern California Edison
94.	Joe Jones	Sandia National Labs
95.	Brian Bonser	NRC
96.	Lisa Gibney	Duane Arnold Energy Center
97.	Vince Sakovich	Iowa Emergency Management
98.	Gene Atkinson	Progress Energy
99.	Jeff Benjamin	Exelon
100.	Nader Mamish	NRC
101.	Robert Kahler	NRC
102.	Robert Williamsen	SCE&G
103.	Edward O'Neill	APS/PVNGS
104.	Mary Lampert	Town of Duxbury, MA
105.	Anthony Sutton	Westchester County, D.E.P.
106.	Lynne Neal	NEA
107.	Mark Flaherty	Constellation
108.	John Padilla	MCDEM
109.	Frank Inzirillo	Entergy – Indian Point
110.	Jana Fairrow	Illinois EMA
111.	Paul Hogue	Arkansas Department of Emergency
112.	Sue Perkins-Grew	FPL Energy, Seabrook Station
113.	Linda Castigliano	Consumers Energy, Big Rock Point
114.	John Stephenson	Progress Energy, Crystal River
115.	Korkean Dulgerian	Orange County, DES
116.	Barbara Culverhouse	SCE
117.	Mike Rose	City of Dana Point, California
118.	Ted Jackson	Georgia Environmental Protection Division
119.	John Giarrusso	MA emergency Management

	NAME	ORGANIZATION
120.	Roger Anderson	AEP
121.	Aubrey Godwin	AZ Radiation Regulatory Agency
122.	Koichiro Koybayashi	Energis Company, Japan
123.	Greg Clary	The Journal News
124.	Martin Vonk	NMC
125.	Larry Nicholson	Duke
126.	E.T. Beadle	Dule – Catawba
127.	Melanie Lyons	NEI
128.	Rick Collings	First Energy
129.	David Burgin	PSE&G
130.	Eric Thornsburg	NRC
131.	Tomoho Yamada	Japan NES
132.	Martin Vyeniolo	PA DEP
133.	Tim East	WCNOC
134.	Eric Epstein	TMI-Alert
135.	Kevin Bruckerhoff	Ameren UE – Callaway
136.	Tommy Almond	Gaston County, NC DEM
137.	Eric R. Smith	SCIENTECH Licensing Information Service
138.	Marc Metayer	VT – DPS
139.	Greg Westmoreland	County Judge, Matagordo County, TX
140.	Clem Morgan	South Texas Project
141.	Fred Klauss	WA State EMD
142.	Holly Harrington	NRC
143.	Lisa Rainwater	Riverkeeper, Inc.
144.	Phillip Musegaas	Riverkeeper, Inc.
145.	Scott McCain	Exelon Nuclear
146.	Thomas Higgenbotham	Michigan State Police, Emergency Management
147.	Onalee Grady-Erickson	Minnesota, Div. Of Homeland Security and EM
148.	Walter H. Lee	Southern Nuclear
149.	Brendan Hoffman	Public Citizen

	NAME	ORGANIZATION
150.	Rich Janati	PA DEP/BRP
151.	Jim Greer	Ottawa County, OH, EMA
152.	Anthony McMurtray	NRC
153.	Robert Stransky	NRC
154.	Teri Engelhart	Wisconsin Emergency Management
155.	Todd Biebel	NJ State Police/NEI
156.	Bernie Bevil	Arkansas Safety and Health
157.	Walter Wright	Linn County Iowa Emergency Management
158.	Alain Grosjean	Entergy Nuclear
159.	Eric M. Daly	USEPA
160.	David Lochbaum	UCS
161.	John Jesse	SC, DHEC
162.	Debbie Grinnell	C-10 Foundation
163.	Kathy Stodola	Iowa EMD
164.	Rodney Brown	Duke Power – Oconee
165.	Ken Riemer	NRC
166.	Stacy Rosenberg	NRC
167.	Ronald Smith	PPL
168.	Susan Shapiro	Rockland FUSE
169.	Andrew Feeney	New York State EMD
170.	Sam Collins	NRC
171.	Mindy Landau	NRC
172.	Tony Huffert	NRC
173.	Douglas Fleck	Pennsylvania EMA
174.	David Ditto	NRC
175.	S Sandin	NRC
176.	Cynthia Costello	New York State Department of Health
177.	Robert Moody	NRC
178.	Raymond D. Albanese	Westchester County
179.	Becky Mattern	PPL – Susquehanna

	NAME	ORGANIZATION
180.	John Scott	Southern California Edison Company
181.	Kevin Williams	NRC
182.	Nathan Sanfilippo	NRC
183.	Mark R. Johnson	State of California
184.	Morgan Rafferty	Mothers for Peace
185.	Laura Lucas	L3 Consulting
186.	Mark Lemke	Pacific Gas & Electric
187.	Tom Rotella	U.S. DOE/NNSA
188.	Chandler van Orman	NEI
189.	Dale Dusenbury	North Carolina Radiation protection
190.	Steve Stasolla	DEMA
191.	Neil Sheehan	NRC, Region I
192.	Alyse Peterson	New York State ERSA
193.	Kerry Flaherty	CT DEMHS
194.	Craig Fiore	FEMA
195.	Carol O'Claire	Ohio – EMA
196.	Steve LaVie	NRC
197.	John Collier	ICF Consulting
198.	Mike Nawoj	New Hampshire Department of Safety
199.	Bruce Musico	NRC

Appendix B. Roundtable Participants

	Name	Organization
1.	Rochelle Becker	Executive Director, Alliance for Nuclear Security
2.	Jeffery Benjamin	Vice President, Licensing and Regulatory Affairs, Exelon Nuclear
3.	Tom Blount	Team Leader, Emergency Preparedness Directorate, U.S. NRC
4.	Samuel Collins	Regional Administrator, Region I, U.S. NRC
5.	Craig Conklin	Chief, Nuclear and Chemical Hazards Branch, FEMA
6.	Eric Epstein	Chairman, TMI-Alert, Inc.
7.	Jana Fairow	Manager, Preparedness Programs, Illinois Emergency Management Agency
8.	Andrew Feeney	Deputy Director, New York State Emergency Management Office
9.	Aubrey Godwin	Director, Arizona Radiation Regulatory Agency
10.	Onalee Grady-Erickson	Senior Planner, Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management
11.	Debbie Grinnell	Resource Advocate, C-10 Research and Education Foundation
12.	Paul Gunter	Reactor Watchdog Project Director, Nuclear Information and Resource Service
13.	Ted Jackson	Manager, Environmental Emergency and Radiation Program, Georgia Environmental Protection Division
14.	Mary Lampert	Chair, Nuclear Advisory Committee, Town of Duxbury, Massachusetts
15.	Mark Lemke	Emergency Planning Manager, Pacific Gas and Electric Company
16.	David Lochbaum	Nuclear Safety Engineer, Union of Concerned Scientists
17.	Nader Mamish	Director, Emergency Preparedness Directorate, U.S. NRC
18.	Robert Moody	Emergency Preparedness Directorate, U.S. NRC
19.	Patrick Mulligan	Chair, Conference of Radiation Control Program Directors E-6 Committee
20.	Alan Nelson	Chief, Emergency Preparedness, Nuclear Energy Institute
21.	Susan Perkins-Grew	Emergency Preparedness Manager, FPL Energy, Seabrook Station
22.	Shannon Rindfleisch	Emergency Planner, Prairie Island Indian Community

	Name	Organization
23.	Mike Rose	Emergency & Support Services Manager, City of Dana Point, California
24.	Stacey Rosenberg	Team Leader, Emergency Preparedness Directorate, U.S. NRC
25.	Anthony Sutton	Commissioner, Westchester County Department of Emergency Services, New York
26.	Tracey Vardas	Emergency Services Coordinator, Office of Emergency Services, San Luis Obispo County, California
27.	Ned Wright	Director, Linn County Emergency Management, Iowa