

**Interim
Radiological Emergency Preparedness (REP)
Program Manual**



August 2002

DISCLAIMER

In this manual, various materials of different origin have been compiled, so that more comprehensive information is available in a single source. However, some material is reproduced in its original format, leading to some variation in appearance within the document.

TABLE OF CONTENTS

	Page
I. INTRODUCTION TO THE REP PROGRAM MANUAL.....	I-1
A. Purpose and Scope	I-1
B. Regulatory Basis for the REP Program.....	I-1
1. Assignment of Responsibility	I-1
2. Standards and Criteria for Evaluation of Radiological Emergency Preparedness	I-2
3. Procedures for Evaluation of Radiological Emergency Preparedness	I-3
4. Alternative Approaches and Methods	I-4
5. Review and Approval of Emergency Preparedness	I-4
6. Federal Delegation of Tasks.....	I-6
C. Technical Basis for the REP Program.....	I-7
1. Nature of the Hazard	I-7
2. Emergency Planning Zones.....	I-7
3. Protective Action Guides	I-9
4. Protective Actions	I-10
D. Decommissioning of Nuclear Power Plants.....	I-13
E. Public Information Materials Review Guidance.....	I-15
II. REP PROGRAM POLICY AND GUIDANCE.....	II-1
Section under review — to be provided when complete.	
III. REP EXERCISE GUIDELINES.....	III-1
A. Milestones and Tasks	III-1
B. Evaluation Areas	III-59
Evaluation Area 1: Emergency Operations Management.....	III-63
Evaluation Area 2: Protective Action Decision Making.....	III-67
Evaluation Area 3: Protective Action Implementation	III-74
Evaluation Area 4: Field Measurement and Analysis.....	III-82
Evaluation Area 5: Emergency Notification and Public Information.....	III-87
Evaluation Area 6: Support Operation/Facilities	III-92
C. Evaluation Area Modules.....	III-97
1. Format of Evaluation Area Modules	III-97
2. How to Use the Evaluation Module	III-98
3. How to Write a Narrative	III-98
4. How to Write an Issue	III-98
5. Example of How Modules May Be Assigned.....	III-99
6. References	III-99
7. Evaluation Area Modules.....	III-99
Evaluation Area 1: Emergency Operations Management.....	III-100
Evaluation Area 2: Protective Action Decision Making.....	III-113
Evaluation Area 3: Protective Action Implementation.....	III-131

Evaluation Area 4: Field Measurement and Analysis.....	III-157
Evaluation Area 5: Emergency Notification and Public Information.....	III-177
Evaluation Area 6: Support Operation/Facilities.....	III-184
D. REP Exercise Preparation Guides for Evaluators and Team Leaders.....	III-197
1. Purpose and Organization.....	III-197
2. General Guidance for Evaluators.....	III-197
3. General Guidance for Team Leaders.....	III-203
E. American Red Cross Guidance.....	III-207
F. Use of State, Tribal and Local Personnel as REP Exercise Evaluators.....	III-221
G. Exercise Credit.....	III-223
H. Scenario Options.....	III-231
I. Correct Issues Immediately.....	III-235
J. Evaluation of Emergency Medical Services Drills.....	III-237
K. Post-Exercise Activities and Documentation.....	III-239
 APPENDIX A: ACRONYMS AND ABBREVIATIONS USED IN REP.....	 A-1
 APPENDIX B: GLOSSARY OF REP TERMS.....	 B-1
 APPENDIX C: RADIOLOGICAL EMERGENCY PREPAREDNESS PROGRAM POLITY AND GUIDANCE.....	 C-1
I. FEMA Documents.....	C-1
II. 44 CFR Regulations.....	C-4
III. Other Agency/Guidance Documents.....	C-4
IV. FEMA Guidance Memoranda.....	C-6
V. FEMA Policy Statements.....	C-7
VI. Policy and Guidance Clarification: Memoranda and Letter.....	C-8

Tables

Table 1: Plume and Ingestion EPZ Characteristics.....	I-9
Table 2: Generic REP Exercise Tasks.....	III-1
Table 3: Milestones for REP Exercise Process.....	III-2
Table 4: Federal Evaluation Process Matrix.....	III-10
Table 5: Comparison of Evaluation Areas with NUREG-0654.....	III-12
Table 6: Assignment of Evaluation Criteria to OROs.....	III-19
Table 7: Detailed Federal Evaluation Process Matrix.....	III-227

I. INTRODUCTION TO THE REP PROGRAM MANUAL

A. PURPOSE AND SCOPE

This manual is intended to be the principal source of policy and guidance for the Federal Emergency Management Agency's (FEMA) Radiological Emergency Preparedness (REP) Program. It was developed in response to the REP Strategic Review Steering Committee's (SRSC) Initiative 1.13 and the recommendations of many of our REP Program partners. It is intended to assist State, Tribal, and local governments, as well as FEMA staff, in planning, training, exercising, and other emergency preparedness activities in the vicinity of nuclear power plant sites.

Previously issued FEMA Guidance Memorandums, policy memorandums, and some REP series documents have been incorporated in this manual and rescinded. Guidance on specific technical areas and other REP Program documents that did not lend themselves to incorporation in this manual have been retained as "technical references." Technical references are listed in Appendix C and cited in the applicable section(s) of this manual. The rescinded guidance documents are also listed in Appendix C for historical purposes. To the greatest extent possible, all future REP Program guidance will be issued as amendments to the applicable section(s) of this manual.

B. REGULATORY BASIS FOR THE REP PROGRAM

1. Assignment of Responsibility

FEMA and the U.S. Nuclear Regulatory Commission (NRC) cooperate to promote and regulate REP in communities near commercial nuclear power plants. FEMA is the lead Federal agency for providing assistance to State, Tribal, and local governments and for review and evaluation of State, Tribal, and local REP plans and preparedness (exercises). The responsibilities of FEMA and the NRC in this regard derive from executive and Congressional actions following the March 1979 accident at the Three Mile Island nuclear power station.

In Executive Order 12148 and the Presidential Directive of December 7, 1979, the President directed FEMA to take the lead in State, Tribal, and local emergency planning and preparedness activities with respect to nuclear power facilities. This assignment followed from FEMA's statutory role in promoting, funding, coordinating, and providing technical assistance for disaster preparedness, as defined in 42 United States Code (USC), Section 5131.

Congress directed the NRC to establish emergency preparedness as a criterion for licensing commercial nuclear power facilities. The NRC Authorization Acts for 1980 [Public Law (PL) 96-295] and 1982–1983 (PL 97-415) establish the linkage between offsite emergency preparedness and facility licensing. The acts prohibit the NRC from issuing an operating license for a power plant unless it finds that "there exists a State, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned" (PL 97-415, Section 5, Volume 96 Congress, U.S. Statutes-at-Large, page 2,069). The acts also provide for the NRC to consult FEMA in developing standards for evaluating plans

[PL 96-295, Section 109(b), Volume 94 Congress, U.S. Statutes-at-Large, page 784] and in making individual determinations of reasonable assurance [PL 96-295, Section 109(b), Volume 94 Congress, U.S. Statutes-at-Large, page 784].

Under these authorities, FEMA and the NRC have issued regulations and guidance, conducted reviews, and made licensing decisions regarding nuclear power plants since 1980. Licensed facilities were required to submit State, Tribal, and local REP plans for review and to have plans in place by April 1, 1981. After that date, if the NRC finds, at any time, that such “reasonable assurance” is not present, and if the Deficiencies are not corrected within 120 days, the NRC (under 10 *Code of Federal Regulations* (CFR) Part (§) 50.54[s]) “will determine whether the reactor shall be shut down until such Deficiencies are remedied or whether other enforcement action is appropriate.” The NRC bases its findings regarding State, Tribal, and local preparedness on a review of FEMA findings and determinations.

2. Standards and Criteria for Evaluation of Radiological Emergency Preparedness

FEMA and the NRC have issued regulations outlining the process and standards with which they will evaluate REP plans. NRC regulations (10 CFR §50.47) state that the NRC will base its findings on a review of FEMA’s findings and determinations with respect to offsite emergency preparedness; the regulations specify 16 standards that response plans must meet. FEMA regulations (44 CFR §350) include the same 16 standards and incorporate by reference the joint FEMA/NRC guidance document, in *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants* (NUREG-0654/FEMA-REP-1, Revision 1, November 1980), cited herein as “NUREG-0654.” As stated in 44 CFR §350.5(a): “Both the planning and preparedness standards (of 10 CFR §50.47 and 44 CFR §350.5) and related criteria contained in NUREG-0654/FEMA-REP-1, Revision 1 are to be used by FEMA and NRC in reviewing and evaluating State, Tribal, and local radiological emergency plans and preparedness.”

The planning standards and evaluation criteria contained in NUREG-0654 are used by FEMA, the NRC, and other Federal agencies (with clarification, interpretation, and revisions as needed) to evaluate whether emergency planning and preparedness at a given site are “adequate to protect the health and safety of the public living in the vicinity of the nuclear power facility by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency...” [44 CFR §350.12(b)(1)]. The planning guidance contained in Section II of this manual provides explanations of the standards and criteria that apply to Offsite Response Organizations and their plans. Certain criteria throughout NUREG-0654 (including Planning Standard B — Onsite Emergency Organization) do not pertain to offsite planning and preparedness.

3. Procedures for Evaluation of Radiological Emergency Preparedness

FEMA and the NRC have entered into a Memorandum of Understanding (MOU) that establishes policy and terms for mutual cooperation in evaluating emergency preparedness in support of nuclear power plants. The MOU was adopted in January 1980 and has been revised three times, with the following effective dates: November 1, 1980; April 9, 1985; and June 17, 1993. The MOU outlines FEMA's responsibilities in evaluating offsite emergency preparedness and details the procedures under which the NRC requests, and FEMA provides, preparedness findings.

Under the MOU, FEMA may review radiological emergency planning and preparedness and provide its findings to the NRC under various circumstances:

- As part of the process described in 44 CFR §350, where the Governor of a State has submitted site-specific plans for review, FEMA will review planning and preparedness and forward its findings to the NRC.
- At the request of the NRC, FEMA will provide “interim findings” on the current state of preparedness, based on review of site-specific plans and on exercise performance if an exercise has been held. The NRC may, for example, request an interim finding in connection with an application for an “early site permit” under 10 CFR §52 and the MOU.
- FEMA may review emergency preparedness at an operating site on its own initiative or at the request of the NRC. If FEMA concludes that there is no longer reasonable assurance of public protection, it will withdraw approval of preparedness for the site and forward its findings to the NRC. The NRC will review FEMA's findings and determine the appropriate measures to be taken. If the NRC finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the NRC will notify the affected Licensee and start the “120-day clock” for the Licensee to make appropriate changes. During that time, FEMA will work with the State, and the NRC will monitor the Licensee to ensure that appropriate corrective measures are taken.
- In the event of a disaster that may affect emergency response preparedness in the vicinity of a nuclear power plant (e.g., a hurricane or earthquake that disrupts roads used for evacuation), FEMA may initiate a special review to determine whether preparedness has been significantly degraded. The results of such a review will be forwarded to the NRC for its consideration in making decisions on the restart or continued operation of the affected facility.

The MOU also describes the joint FEMA/NRC Steering Committee, which is to be the “focal point for coordination of emergency planning and preparedness” and “assure coordination of plans and preparedness evaluation activities and revise, as necessary, acceptance criteria for Licensee, State, and local radiological emergency planning and preparedness” [MOU Section IX, 44 CFR §353, Appendix A (1993)]. Questions about the interpretation of the criteria used for evaluating plans and preparedness are to be “referred to FEMA Headquarters and, when

appropriate, to the FEMA/NRC Steering Committee to assure uniform interpretation” [MOU Section III.B, 44 CFR §353, Appendix A (1993)].

Pursuant to FEMA policy and procedures, FEMA Regional Office personnel evaluate plans, with assistance from Regional Assistance Committee (RAC) members. The Regional RACs consist of representatives of Federal agencies that have agreed to assist FEMA in providing technical assistance to State, Tribal, and local governments and evaluate REP plans and exercises on the basis of their special authorities, missions, and expertise. Reviews of REP plans and recommended findings prepared by FEMA Regional Offices are forwarded to FEMA Headquarters for final determination by the Associate Director of the National Preparedness Directorate. FEMA Headquarters forwards its reviews of the adequacy of the REP plans and final findings to the NRC for its use in making licensing decisions.

4. Alternative Approaches and Methods

The planning standards outlined in 44 CFR §350.5 and 10 CFR §50.47 are regulatory requirements for Offsite Response Organizations (ORO) participating in radiological emergency planning and preparedness for commercial nuclear power plant accidents. The evaluation criteria listed in NUREG-0654, as clarified and applied by NRC, FEMA, and other Federal agencies, represent Federally approved approaches for meeting the intent of the regulatory planning standards. Offsite Response Organizations may propose alternative approaches to meeting those standards in writing to the appropriate FEMA Regional Office for review. The FEMA Regional Offices will forward their recommendations on such proposals to FEMA Headquarters for review and approval. FEMA will coordinate the review of proposals with RAC members and their agencies’ Headquarters staff when the issues raised in such proposals involve their agency’s areas of expertise and missions. FEMA will also coordinate with the NRC and Licensees when offsite planning and preparedness issues affect onsite planning and preparedness. When appropriate, proposed alternative approaches should be demonstrated during an exercise, and if performed successfully, and approved by FEMA, they should become a part of the ORO’s emergency response plan.

5. Review and Approval of Emergency Preparedness

FEMA conducts its reviews of State, Tribal, and local radiological emergency preparedness according to the provisions of 44 CFR §350. Those regulations define procedures for submitting plans for review and approval, as well as other requirements (public meeting and exercise) for establishing reasonable assurance of public health and safety. Responsibilities are defined at the FEMA Regional and Headquarters levels for evaluation and administrative approval of State, Tribal, and local preparedness, including procedures for withdrawal of approval if subsequent information indicates that preparedness is no longer adequate.

The process stipulated by 44 CFR §350 begins when a State applies for approval of its planning and preparedness for a particular nuclear power plant site. The State submittal covers both the State and appropriate local governments. In States with multiple sites, plans for each site are submitted separately. FEMA approval of planning and preparedness is site specific. The Governor or designee signs a letter declaring that, in the opinion of the State, the plans are

Section I — Introduction

“adequate to protect the health and safety of its citizens...by providing reasonable assurance that State, Tribal, and local governments can and intend to effect appropriate protective measures offsite in the event of a radiological emergency” (44 CFR §350.7[d]). Application is made to the appropriate FEMA Regional Director.

The Regional Director must acknowledge receipt of the application within 10 days and publish a notice in the *Federal Register* within 30 days. With assistance from the RAC (chaired by FEMA), the Regional Director makes a detailed review of the plans submitted and assesses the capability of State, Tribal, and local governments to effectively implement the plans through the conduct of a joint utility/State/Tribal/local full-participation exercise. The State’s capability to implement the plan includes factors such as adequacy and maintenance of procedures, training, resources, staffing, and equipment. The review is conducted according to the planning standards and evaluation criteria outlined in 10 CFR §50.47(b), 44 CFR §350.5, and NUREG-0654. The Regional Director works with the State to resolve any gaps or Deficiencies identified in the review.

In addition to submitting plans for review, the applicant must conduct at least one joint, full-participation exercise and hold a public meeting in the vicinity of the plant to review the plan and exercise. On the basis of a review of the plans, exercise, and public meeting, the Regional Director submits the plan and his or her evaluation to the FEMA Associate Director. The material forwarded by the Regional Director should include an evaluation of each planning standard set out in 44 CFR §350.5 and other relevant items, including the results of any REP exercise, a summary of the Deficiencies identified during the public meeting or exercise(s), recommendations made to the State for improvements, and commitments made by the State for effecting improvements.

The Associate Director reviews the plans submitted by the Regional Director as necessary, with assistance from the Federal Radiological Preparedness Coordinating Committee (FRPCC) and other FEMA offices. The Associate Director approves the plans if he or she determines that they are adequate (i.e., provide reasonable assurance) and that State, Tribal, and local response organizations are capable of implementing them. Approval (or disapproval) is communicated to the Governor, the NRC, and the appropriate Regional Director and is published in the *Federal Register*.

After approval is granted, FEMA continues to monitor the state of preparedness at each site through evaluation of exercises and plan updates. The schedule of required exercises is described in the regulations (44 CFR §350.9). If the plan undergoes a “significant” change as defined in the regulations (44 CFR §350.14), the change is processed in the same manner as an initial plan submittal. However, the Regional Director may determine that certain procedures, such as holding a public meeting or a complete exercise, are unnecessary. In that case, the existing approval remains in effect during review of the change.

If, at any time, the Associate Director determines that the plan is no longer adequate or no longer capable of being implemented, he or she advises the Governor of the affected State, the appropriate Regional Director, and the NRC. The notification from the Associate Director must spell out in detail the reasons for the determination. The State then has 120 days to either correct

the Deficiencies noted or submit an acceptable plan for correcting them. If a plan for correcting Deficiencies is submitted, the Associate Director negotiates with the State regarding the schedule for implementing the corrective action plan. If the Deficiencies have not been corrected and an acceptable plan has not been submitted after 120 days, or if a plan was accepted but the Deficiencies were not corrected by the agreed-upon date, the Associate Director may withdraw FEMA approval of the plan and undertake the notifications described above (i.e., the Governor, the NRC, and the appropriate Regional Director.)

6. Federal Delegation of Tasks

FEMA regulation 44 CFR §351 delineates the responsibilities of each Federal department and agency and assigns tasks for providing Federal assistance in radiological emergency planning and preparedness measures on the basis of each agency's mission, role, and expertise. On October 22, 1980, 44 CFR §351 was initially published for interim use and public comment and was subsequently published as a final regulation in the *Federal Register* on March 11, 1982. The following Federal organizations are assigned responsibilities: Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Health and Human Services (Centers for Disease Control, Food and Drug Administration), Department of Housing and Urban Development, Department of Justice (Federal Bureau of Investigation), Department of State, Department of the Interior, Department of Transportation, Department of Veterans Affairs, Environmental Protection Agency, Federal Communications Commission, General Services Administration, National Aeronautics and Space Administration, and NRC.

This regulation establishes two formal mechanisms for coordinating the provision of Federal assistance to State, Tribal, and local governments: the FRPCC for coordinating Federal agency activities at the national level and the nine RACs for coordinating activities at the regional level.

C. TECHNICAL BASIS FOR THE REP PROGRAM

1. Nature of the Hazard

Radiation is any form of energy propagated as rays, waves, or streams of energetic particles that travel through space or a material medium. Nuclear radiation is of concern in REP planning because it is typically “ionizing” radiation, which can damage human cells.

There are three basic types of ionizing radiation that could pose a radiological hazard during an accidental release at a nuclear power plant site:

- *Alpha radiation* is a positively charged particle emitted from the unstable nucleus of a radioactive isotope when the neutron-to-proton ratio in the nucleus is too low. Alpha particles are highly ionizing, but the particles travel short distances in air (4 centimeters) before being absorbed. Alpha particles have a very low ability to penetrate objects; a few sheets of paper or the outer layers of skin can stop them. The external hazard from alpha particles is minimal, while the internal hazard (when they are inhaled or absorbed) may be significant.
- *Beta radiation* is a negatively charged particle emitted from the unstable nucleus of a beta-unstable radioactive atom. Beta particles usually travel greater distances in air than alpha particles (about 2 meters) before being absorbed. Beta particles are more penetrating than alpha particles — they can pass through an inch of water or human tissue — but a thin sheet of aluminum can stop them. Depending on the radionuclide, beta particles may constitute an external radiation hazard, such as skin burns.
- *Gamma radiation* is electromagnetic radiation emitted from the nucleus of a radionuclide. It travels a greater distance in air than do either alpha or beta particles before being absorbed. Gamma ray radiation is similar to X-rays; dense shielding material, such as lead, is needed to absorb it. Gamma-ray radiation is the most common external radiation hazard encountered in a radiation incident. Because of their high penetrating power, high-energy gamma rays can irradiate the entire human body almost uniformly, and they pose a serious external and internal hazard.

It is important to distinguish between direct exposure to radiation and exposure through radiological contamination. A person exposed to a medical X-ray receives direct radiation, but the body is not radioactively contaminated. Radioactive contamination occurs when radioactive particles are deposited on a person’s skin and can be absorbed through the skin or by inhalation or ingestion. These considerations form the basis of emergency planning, along with actions implemented to protect the health and safety of the public after an accidental radiological release.

2. Emergency Planning Zones

The Emergency Planning Zone (EPZ) is the area surrounding a nuclear power plant site for which plans have been made to ensure that prompt and effective actions can be taken to protect the health and safety of the public in the event of an accident or incident at the site. Two types of

Section I — Introduction

EPZs are recognized for planning purposes: the plume exposure pathway EPZ and the ingestion exposure pathway EPZ. The characteristics of these two types of EPZs are summarized in Table 1. Each type of EPZ is a roughly circular area with the nuclear power plant at the center. The sizes of the EPZs represent a technical judgment based on the type and quantity of hazardous materials present (source term) and the potential risks where detailed planning is needed to ensure adequate response to an emergency. An EPZ may include more than one State. “Split” jurisdictions (i.e., part of the jurisdiction is included in the EPZ and part is not) also exist. In these cases, EPZ boundaries are determined on the basis of consultation with all parties involved, including the State, Tribal, and local governments, FEMA, and the NRC. In some cases, a conservative option is taken, and the entire jurisdiction is included in the EPZ.

The size of the plume exposure pathway EPZ (about 10 miles) is based on the following considerations:

- Projected doses from traditional design-basis accidents would not exceed the Protective Action Guide (PAG) levels outside the zone;
- Projected doses from most core damage sequences would not exceed PAG levels outside the zone.
- For the worst-case core damage sequences, immediate life-threatening doses would generally not occur outside the zone.
- Detailed planning within approximately 10 miles would provide a substantial base for expansion of response efforts to a larger area, if necessary.

The size of the ingestion exposure pathway EPZ (about 50 miles in radius, including the 10-mile-radius plume exposure pathway EPZ) is based on the following considerations:

- The downwind range within which contamination may potentially exceed the PAGs is limited to about 50 miles from a power plant because of wind shifts during the release and travel periods.
- Atmospheric iodine (i.e., iodine suspended in the atmosphere for long periods) may be converted to chemical forms that do not readily enter the ingestion pathway.
- Much of the particulate material in a radioactive plume would have been deposited on the ground within about 50 miles from the plant.
- The likelihood of exceeding ingestion exposure pathway PAG levels at 50 miles is comparable to the likelihood of exceeding plume exposure pathway PAG levels at 10 miles.

TABLE 1 Plume and Ingestion EPZ Characteristics

Type of EPZ	Exposure Sources	Size
Plume Exposure Pathway	<ul style="list-style-type: none"> • Whole-body external exposure to gamma radiation from the passing plume and from deposited material • Thyroid exposure through inhalation from the passing plume • Committed effective dose equivalent exposure to other critical organs through inhalation 	Approximately 10-mile radius
Ingestion Exposure Pathway	<ul style="list-style-type: none"> • Ingestion of contaminated water or foods such as milk, fresh vegetables, and aquatic foodstuffs may result in increased risk of radiation-induced cancer to the thyroid, bone marrow, and other organs 	Approximately 50-mile radius

3. Protective Action Guides

A PAG is the projected dose to individuals that warrants protective actions from an accidental release of radioactive materials. Specific protective actions are warranted to prevent or minimize the potential dose, which is the future dose calculated for a specified period on the basis of estimated or measured initial concentrations of radionuclides or exposure rates that would be received by individuals if no protective actions were taken. A PAG does not imply an acceptable level of exposure risk; it is used only to minimize the risk from an event that is occurring or has already occurred. The following criteria were used to establish PAGs:

- Avoid acute health effects.
- Keep the risk of delayed health effects within upper bounds that adequately protect public health and are reasonably achievable.
- Ensure that the health risk from protective actions does not exceed the health risk from the dose that would be avoided.

Separate PAGs have been developed for the early (plume) and the intermediate (ingestion and relocation) phases of an incident. The PAG for the early phase, as recommended by EPA-400-R-92-001,¹ is 1 to 5 rem for evacuation (if possible) or for sheltering (if evacuation is not possible). Evacuation is usually initiated at 1 rem. In some situations, however, sheltering is recommended on the basis of site-specific conditions, including the type of release.

¹ *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*, U.S. Environmental Protection Agency, EPA-400-R-92-001, May 1992.

Section I — Introduction

For use during the intermediate phase, the U.S. Department of Health and Human Services (DHHS) and U.S. Food and Drug Administration (FDA) (*Federal Register* notice dated August 13, 1998) have developed ingestion PAGs of 0.5 rem for the committed effective dose equivalent (CEDE) or 5 rem for the committed dose equivalent (CDE) to individual tissues or organs, whichever is more restrictive. Derived intervention levels (DILs) have been established on the basis of a specific set of assumptions — the specific radionuclide concentrations in food that are equivalent to the ingestion PAGs. The DILs establish the levels of radioactive contamination at which food is not normally permitted into commerce. Responsible officials should take protective actions to prevent or reduce the concentration of radioactivity in food or animal feed or isolate any food containing radioactivity to prevent its introduction into commerce.

The intermediate-phase relocation PAG, established by EPA-400-R-92-001 is 2 rem total effective dose equivalent (TEDE) in the first year. The long-term objectives are to keep doses at or below 0.5 rem during each subsequent year after the release and the total dose at or below 5 rem in 50 years. The relocation PAG addresses post-plume external exposure to deposited radioactive materials and inhalation of re-suspended radioactive materials that were initially deposited on the ground or other surfaces.

In addition to the PAGs, separate dose limits have been established for emergency workers, as provided in EPA-400-R-92-001. The TEDE for emergency workers who have taken potassium iodide (KI) is not likely to exceed five times their measured external dose, as indicated by direct-reading dosimeters (DRDs), for the more probable and less severe accidents. For example, if the external dose measured by a DRD is limited to 5 roentgens (R), the TEDE is not likely to exceed 25 rem.

Radiological emergency response plans should include the following dose limits for emergency workers:

- A limit of 5 rem for all “routine” emergency activities;
- A limit of 10 rem for protecting valuable property (when a lower dose is not practicable);
- A limit of 25 rem for life-saving activities or protection of large populations (where a lower dose is not practicable); and
- A dose greater than 25 rem for life-saving activities or protection of large populations when an emergency worker volunteers for the mission and is fully aware of the risks involved.

These are recommended maximum limits; an organization may decide to adopt lower administrative limits as a conservative measure or in special cases.

4. Protective Actions

Protective actions are activities conducted in response to an incident or potential incident to prevent or minimize the projected radiation dose, when the benefits of the action are sufficient to

Section I — Introduction

offset any undesirable features of the protective action. Each protective action is designed to implement one of the following radiation protection principles: decrease *time* of exposure, increase *distance* from the source, provide *shielding* from the plume, or limit *ingestion* of contaminated foodstuffs. The protective actions offsite authorities may implement include the following:

- Evacuation from areas of projected plume passage;
- Shelter in homes or other structures;
- Access control;
- Administration of KI to emergency workers, populations who cannot be evacuated, and, where included in the emergency plans, the general public;
- Control of surface contamination;
- Placing livestock on stored feed and protected water;
- Quarantine or exclusion of foodstuffs; and
- Relocation of populations from areas where radiation levels exceed the relocation PAG.

The appropriate protective action will depend on a number of factors, for example, projected beginning of the radiological release, projected duration of the release, composition and direction of the release, weather conditions, and time of day (e.g., day versus night). All protective actions have the common goal of preventing or minimizing exposure of the public to radiation.

D. DECOMMISSIONING OF NUCLEAR POWER PLANTS

To Be Developed

E. PUBLIC INFORMATION MATERIALS REVIEW GUIDANCE²

**A GUIDE TO PREPARING AND REVIEWING
PUBLIC INFORMATION MATERIALS
AND
EMERGENCY ALERT SYSTEM INSTRUCTIONS
FOR
RADIOLOGICAL EMERGENCIES**

² Section I.E (pages I-15 through I-46) supersedes the FEMA draft document *A Guide to Preparing and Reviewing Public Information Materials and Emergency Alert System Instructions for Radiological Emergencies* (FEMA-REP-11). Page numbers have been revised to correspond to this manual.

CONTENTS

INTRODUCTION.....	I-19
BACKGROUND.....	I-21
PURPOSE	I-22
I. PREPARATION OF EMERGENCY PUBLIC INFORMATION MATERIALS	I-23
A. Audience Analysis and Targeting	I-23
1. Foreign Language Speaking Population	I-23
2. Special Needs Population.....	I-23
3. Farming Population.....	I-24
4. Transient Population	I-25
B. Emergency Information Materials	I-25
1. Emergency Focus and Purpose	I-25
2. Content of Emergency Information.....	I-26
a. 10–Mile Plume EPZ.....	I-26
b. 50–Mile Ingestion EPZ	I-28
3. Organization of Content	I-28
C. Comprehensibility	I-29
1. Choice of Document Format	I-29
2. Readability	I-30
3. Graphic Design.....	I-31
a. Typography	I-31
b. Layout and Design	I-31
c. Photographs and Art Work.....	I-32
d. Color.....	I-32
e. Paper.....	I-33
II. EMERGENCY BROADCAST PROCESS AND INSTRUCTIONS.....	I-33
A. Coordination.....	I-34
B. Content	I-34
C. Comprehensibility	I-36
1. Language	I-36
2. Brevity.....	I-36
3. Clarity and Coherence.....	I-36
4. Consistency and Comprehensiveness	I-36
5. Repetition	I-37
D. Format	I-37
E. Delivery.....	I-38

APPENDICES

A. Emergency Education and Information Techniques Guidance Checklist.....	I-39
B. Ingestion Exposure Pathway Brochure Checklist.....	I-43
C. Reference Materials.....	I-45

A Guide To Preparing and Reviewing
Public Information Materials
And
Emergency Alert System Instructions
For
Radiological Emergencies

INTRODUCTION

Instructing the public on how to respond in the event of an emergency is a vital element of emergency planning and preparedness. The guidance presented in this section is intended to promote continued improvements in the content and comprehensibility of informational materials distributed prior to an emergency, as well as emergency broadcast instructions, i.e., Emergency Alert System (EAS) (formerly the Emergency Broadcast System.) and other broadcast media messages, disseminated during an actual emergency.

Although this guidance will concentrate on radiological emergencies, many of the preparedness activities associated with radiological emergencies can also be applied to all other types of hazards. Public informational materials concerning commercial nuclear power plant emergencies are produced by both the U.S. Nuclear Regulatory Commission's (NRC) licensees and State, Tribal and local governments, often through a combined effort.

Informational materials should clearly inform members of the public about how they will be notified of an emergency and about the steps they could be asked to take in response to the emergency. These informational materials should be prepared prior to an actual emergency and distributed annually. EAS messages should notify members of the public that an emergency has occurred, specify the segment(s) of the population affected by the emergency, and list the actions to be taken by the public in response to the emergency. A range of prescribed EAS messages, relating to the range of potential emergency situations, should be prepared in advance of an actual emergency. Procedures for authorizing and disseminating these messages should also be in place prior to an emergency.

Many factors influence the public's understanding of emergency information materials and emergency broadcast instructions. Some of these factors, such as reader interest, knowledge, appeal, clarity of content, legibility, visibility, and style, cannot be objectively measured.

Readability - sentence length and word difficulty - can be objectively measured.

Comprehensibility is a more difficult concept to quantify because it represents the interplay of many variables, including prior knowledge and experience, attitudes toward the subject matter, motivation and traditional measures of readability and understanding. The length of emergency information materials must also be considered.

Setting standards for evaluating emergency information is very difficult because some elements like graphics and design are not readily quantifiable. Other elements, especially for the hearing and sight impaired, are challenging because of the different types of communication available.

Section I — Introduction

Producing information materials is a creative process and needs a certain latitude within which to operate.

Non-emergency public reading materials, such as newspapers and commercial advertisements, are written at grade 7–9 reading levels. However, because of the high stress level during an emergency, emergency informational materials and EAS messages should be written at the lower level end of the grade 7–9 reading level or perhaps even below.

BACKGROUND

One of the responsibilities of FEMA is to review offsite radiological emergency preparedness, planning, response, and public information materials. In doing so, FEMA assists State and local governments in implementing their responsibilities for the safety of persons and property in the vicinity of commercial nuclear power plants. FEMA rule, 44 CFR part 350 incorporates the planning standards and evaluation criteria from NUREG-0654/FEMA-REP-1, Revision 1, (herein after referred to as NUREG-0654) and establishes the policy and procedures that FEMA uses to evaluate and approve State and local offsite radiological emergency response plans and preparedness. This evaluation is based on planning standards and evaluation criteria specified in NUREG-0654 and its Supplement 1, Final Report, September 1988. Planning Standard G addresses the content and dissemination of public information within the Emergency Planning Zone (EPZ).

A major issue that requires further attention is that of emergency broadcast message development, content and delivery. Therefore, a section on emergency broadcast messages has been added to this document to provide additional guidance on emergency messages and instructions for correcting this problem.

Organizations with assigned offsite responsibilities should alert the public and provide emergency instructions and information, as necessary, to address the following:

- (1) the status of the emergency;
- (2) potentially affected populations and areas; and
- (3) protective measures that may be necessary.

While recognition is made in NUREG-0654 of the use of special alerting mechanisms for institutions such as schools, no exceptions for providing emergency alerting and notification of the public are set forth in this guidance. Therefore, it is expected that the public will be alerted and notified of all protective measures, including precautionary evacuations of schools, unless other more definitive guidance is provided. The main reason for this is the importance of keeping parents informed of the status of their children throughout the duration of an emergency at a commercial nuclear power plant.

Section I — Introduction

PURPOSE

This guidance serves two basic purposes:

- (1) to assist State, Tribal and local governments and licensees in preparing or revising emergency information materials and emergency broadcast instructions and
- (2) to assist with the review and evaluation of these materials.

This guidance is divided into two sections:

- I. Preparation of Emergency Public Information Materials, and
- II. Emergency Broadcast Process and Instructions.

While this information may be applicable to all types of emergencies, the emphasis will be placed on communications relating to emergencies at commercial nuclear power plants.

The two guidance checklists at the end of this document (for plume exposure pathway and ingestion exposure pathway) provide a summary of the various recommendations made throughout this guidance.

I. PREPARATION OF EMERGENCY PUBLIC INFORMATION MATERIALS

A. Audience Analysis and Targeting

Commercial nuclear power plants are located in areas with varying demographic characteristics. Emergency information materials should be based on an analysis of the target population and contain information that addresses all aspects, e.g., language spoken, of a site-specific audience profile. Information on characteristics of the population is useful for choosing among possible distribution methods, including: annual mailings, community meetings, personal visits, mobile exhibits, school materials, and videotapes.

Sometimes, special population groups, such as foreign language speaking populations, mobility limited or physically impaired persons, farmers, and transients, live in or commute to the EPZ and may have unique information requirements. Any unique information requirements should be considered and integrated into the **relevant** information materials. It is important to recognize the need to be flexible when addressing the basic elements of emergency education and information materials.

1. Foreign Language Speaking Population.

Local circumstances may suggest the need for written materials in a foreign language *Translation of Public Education Brochures*, if the foreign language speaking population of voting age exceeds 5 percent of the population of a 10-mile EPZ county or its equivalent, emergency preparedness information should be translated into that foreign language. The most recent Census data should be used to determine if a foreign language translation is required. Consideration should also be given to the percentage of seasonal foreign language speaking transients and to demographic changes.

Alternative efforts may be needed to ensure that the foreign language speaking population will have the opportunity, at least annually, to obtain translated information similar to that provided to the general population. Such efforts could include special courses of instruction for the foreign language community leaders, public meetings featuring a trained foreign language speaker, training for leaders of neighborhood organizations, advertisements in foreign language newspapers, and oral assistance to individuals through a buddy system. Before selecting a method, a judgment should be made about the capability of the foreign language speaking population to comprehend English, and consideration should be given to the way the population usually receives information. Written materials may not be the only means of communication.

2. Special Needs Population.

An assessment should be made of the number and types of special needs persons living in the area, and their impairments, e.g., mobility, hearing, etc. A system to identify these individuals should be developed and confidentially maintained. The frequency of updating such an inventory is a local decision, but FEMA recommends at least an annual review. The results of that assessment will indicate the need to provide information, at least annually, in

an appropriate format; for example, oral briefings for those with vision impairments or alternative methods of emergency notification for the hearing impaired.

One way to make this assessment is by using a self-identification card that can be distributed with emergency information materials. Other means of identifying members of the special needs population are listed in FEMA GM-24, *Radiological Emergency Preparedness for Handicapped Persons*. These resources include national organizations for different groups of handicapped or disabled individuals and fire service organizations, since they often provide services for handicapped persons. Also, elderly residents who have minor impairments of vision that may hinder reading emergency instructions in average print size should be considered.

3. Farming Population.

Many 10-mile EPZs may include farming populations, food processing facilities or food distribution centers. Farmers, food processors and distributors in the EPZ need additional instructions on special measures to take for the care and feeding of livestock and the handling of food and agricultural products.

When the 10-mile EPZ encompasses rural farm areas, instructions or references to sources of information on the protection of agricultural animals and related food products should be included in the information distributed to the public as part of the annual mailing or should be separately produced and distributed.

Arrangements should be made for public information efforts to be directed at farmers, farm workers, food processors, and distributors within the 50-mile ingestion exposure pathway EPZ in the event of an actual emergency. The State emergency offices, in cooperation with the State Extension Offices, should be prepared to deliver written materials, within 24 hours of the declaration of the emergency classification level specified in the State plan, to the agricultural population in the ingestion pathway EPZ.

The State Emergency Services Office and the U.S. Department of Agriculture (USDA) are other sources of basic information on the implementation of agricultural measures and food assistance. Other topics may be extracted for publication from the “Disaster Handbook for Extension Agents,” available from county USDA extension offices. Other sources of food and agricultural emergency information are the U.S. Department of Energy (airborne contamination monitoring); the Environmental Protection Agency (ground contamination monitoring); and the U.S. Department of Health and Human Services, Food and Drug Administration (food safety standards).

Arrangements should be made to have pre-prepared scripts of emergency information available as needed for broadcast via radio, television, and National Oceanic and Atmospheric Administration (NOAA) Weather Radio with broadcast arrangements pre-planned. Copies of scripts and printed emergency information should be available when requested.

4. Transient Population.

Another aspect of performing an audience analysis of an EPZ is identifying the transient population and its information requirements. Transient populations could include people who may be spending time in an isolated location within the EPZ, such as in the woods, parks, or on a lake or reservoir, and people who come into the EPZ on an intermittent or one-time basis and reside in guest lodgings or motels.

Basic notices about what the emergency notification signal is and what to do can be handled with an ample number of explicit emergency posters or signs of very few words. These signs or posters should be placed in carefully chosen locations, such as lodgings, commercial establishments, and access points to recreational areas in remote locations. Additional details can be handled with a flyer that can be distributed at establishments serving the transient population.

When recreational activities are conducted on private property, steps should be taken to enlist the owner's cooperation in posting appropriate signs or distributing appropriate information to persons who will be on the property. Authorities who provide licenses for recreational activities such as fishing, hunting or boating should provide emergency information with the license.

B. Emergency Information Materials

Recognizing that the large amount of informational materials delivered to the public is confusing, it is very important to pay attention to detail when providing the population with important information.

1. Emergency Focus and Purpose.

Emergency materials should be easily identified. The covers should include: (1) titles that indicate that purpose and (2) statements that the materials should be read and retained for use in an emergency. The mailing envelope, or the addressed side of the information material if it is a self-mailer, also should be clearly labeled to convey the important nature of the enclosed emergency materials and the need for retention.

The introductory passage should state that the primary purpose of the material is to supply important information and instructions to follow in an emergency. The material should identify the subject matter - a potential emergency at a nuclear power plant, another hazard, or a combination of hazards. It should state that the emergency information applies to several emergency situations and identify those appropriate to the area.

The primary emphasis should be on what to do in an emergency with a secondary emphasis on public health background information. In short, the most important function of the emergency information material should be to provide well-organized and well-displayed information about what to do in an emergency.

2. Content of Emergency Information.

The content of the emergency information material should provide the target audience with all the information necessary for an expeditious response to an emergency. The content must be consistent with the State or local plan and the information to be broadcast over the EAS stations at the time of the emergency.

Public relations passages, including letters and quotes from political, agency, or licensee officials, should be examined for overall contribution to the objectives of the publication before their inclusion in the material.

When a glossary is included in the material, it should contain only the definitions of terms found in the material or used in the emergency broadcast information or other media during an emergency. Extraneous terms in a glossary can be confusing and occupy space that can be better used.

a. 10-Mile Plume EPZ.

Emergency information materials should contain the following information:

- (1) *A clear statement of purpose.*
- (2) *Date of issue and issuing agency.*
- (3) *A document retention statement.*
- (4) *A clear discussion of how EPZ residents will be notified of an emergency and where to turn for emergency information.* Both the call letters and channels of the radio and television stations serving in the EAS or other prompt notification system should be identified.
- (5) *Instructions for Shelter-In-Place.* Specific and logically presented instructions should be provided. These instructions must be consistent with the State or local plan.
- (6) *Evacuation Instructions.* Information related to evacuation preparations and procedures including: instructions for securing the home; a list of evacuation supplies; suggestions for notifying neighbors and friends; transportation assistance information; suggested evacuation destinations including the need (if any) to report to reception or relocation centers; and clearly defined evacuation routes and written directions to accompany an EPZ evacuation map.
- (7) *An easy to read EPZ map.* The map should highlight evacuation routes and directions and the location of reception centers. Evacuation routes should be clearly labeled with road numbers or names that are consistent with the State or local plan and with the EAS messages. The map should include a simple map legend and compass rose.

Section I — Introduction

- (8) *Provision for determining special needs.* The material should include a “special needs” card to be completed and returned by residents needing special assistance during an emergency. A tear-off or bound/stapled prepaid postcard may be used for booklet-type publications.
- (9) *An emergency assistance telephone number and instructions on its use.* (This will depend on whether the local emergency plan calls for an emergency telephone number or makes other provisions.) “Hotline” telephone numbers for use during emergencies should be distinguished from informational telephone numbers for use during non-emergencies.
- (10) *Public Inquiry.* Public inquiry telephone numbers should be included for use during an emergency.
- (11) *Provisions for special populations.* The material should include emergency information consistent with the State or local plan about the care of school children, children at day care centers, and private schools, hearing- and mobility -impaired persons, and those needing transportation assistance. Supplemental documents prepared for special populations should provide basic information on the procedures for notifying special populations and details on protective actions.
- (12) *Agricultural information, if appropriate to the area.* Instructions, or references to sources of information, about the protection of livestock and agricultural products should be included in the informational material when the 10-mile EPZ encompasses rural farm areas, food processing facilities or food distribution centers.
- (13) *Information on congregate care or relocation centers.* The identification of designated congregate care or relocation centers, the evacuation routes leading to those centers, and a description of the services and supplies provided by the centers should be contained in the informational material.
- (14) *Use of radioprotective drugs.* Both the shelter and evacuation sections of the information material should include an explanation of the use of radioprotective drugs such as potassium iodide (if authorized by State or local governments for use by the public).
- (15) *Educational information.* Basic information on radiation should be included in the emergency information materials. Detailed information on radiation, plant operation, and emergency classification levels may be presented through other non-emergency related means.
- (16) *Contacts for additional information.* Include the names, addresses and telephone numbers of those agencies that may be contacted for additional information or where questions of a non-emergency nature can be answered.
- (17) *Blank space for additional information.* This is helpful to record important information for use during an emergency.

Section I — Introduction

b. 50-Mile Ingestion EPZ.

Emergency information for use by the agricultural community should include the following information:

- (1) *Notification procedures.* The information material should identify how members of the agricultural community will be notified of an emergency and which protective actions should be taken.
- (2) *Preventive protective actions.* Instructions should be provided for taking preventive protective actions for animal feed, water, livestock, milk, poultry and poultry products, vegetables and fruits, meat and meat products, grains, honey and soil. This information should include personal protection procedures for working in contaminated areas or with contaminated products. Precautions related to hunting and fishing in contaminated areas should be provided.
- (3) *State and local emergency protective actions.* Instructions should be provided for taking emergency preventive protective actions primarily involving the interdiction or condemnation of foods, feeds, or other contaminated products.
- (4) *Educational information.* Sufficient information should be provided regarding the effects of radiation and radioactive material deposits on the human food supply and agricultural products to emphasize the importance of taking preventive and emergency protective actions.
- (5) *Sources of additional information.* The information material should identify sources where additional agricultural emergency information may be obtained.

3. Organization of Content.

The emergency information should use logical, carefully sequenced patterns of organization. Presentation of information should be based on the immediacy of the need for that information during an emergency. The material should have the following organizational features:

a. *Placement of Emergency Information.*

Emergency information should be positioned in a prominent place at the front of the material. This information should be presented according to the chronological sequence of events that might occur or in the order of importance and relevance of the information. Information on how the population will be notified of an emergency should precede information on how to respond. Emergency needs and actions of the general public should be addressed before those of special populations.

Section I — Introduction

b. Placement of Vital Information.

The presentation of vital emergency instructions should precede all other emergency related information.

c. Self-contained Sections.

Each topical section within the emergency instructions portion of the material should be self-contained. Care should be taken to ensure that the content of a given section does not reference information in sections located on other pages.

d. Placement of Other Information.

Information that is not directly related to an emergency or to the health and welfare of the target audience can be considered educational in nature and should be placed after the emergency information. One effective strategy is to remove the bulk of educational information to a separate document to ensure the effectiveness of the emergency information contained in the primary document. A newsletter format may be a successful vehicle for educational information.

C. Comprehensibility

Information must be understood and retained if it is to be used when needed in an emergency. Clarity and style are important elements. Good graphic design coupled with clear, pertinent text has a higher likelihood of being understood and followed by the public.

1. Choice of Document Format.

Several types of documents, such as booklets, telephone book inserts, foldouts, brochures, maps with text, calendars, and posters, can be effective if issued on a regular basis. Each format has a different strength: telephone book inserts can provide excellent positioning and ensure retention; posters provide highly visible information to residents or transients who might be otherwise difficult to reach; brochures provide detail; and calendars increase the possibility of retention. The choice of format should encourage the EPZ population to keep the instructions available.

The adequacy and appropriateness of the format used will depend on the audience profile, the message and other informational materials or programs used as reinforcement, and the general distribution strategy. Before choosing a type of format, or combination of formats, decide who will receive the message, how it will be received, and what information should be transmitted. Some formats may form a part of an overall notification and educational plan. They can be effective when used in conjunction with other types of materials. The concept of a major emergency information document distributed to the EPZ population and supported by a comprehensive program of supplementary materials may be an effective approach to emergency preparedness.

Another format consideration is the size and shape of the evacuation map; it should be large enough to be legible and still be manageable in a moving vehicle. Information materials should be of sufficient size to be easily used, stored, and found again when needed.

2. Readability.

The term “readability” refers to the ease with which a given passage of text can be read and understood. Several formulae have been developed to predict readability and have been validated by comprehensive testing. The Dale-Chall formula is appropriate for predicting the readability of written emergency information materials. In determining readability, two basic factors should be considered: sentence length and vocabulary difficulty.

The greater the average sentence length, the more difficult the information is to understand. More complex and more difficult language usually is associated with longer sentence *lengths*. Sentence length is also related to the complexity of the sentence structure. For example, as the number of dependent clauses in a given sentence increases, so does the intellectual sophistication needed to comprehend the material.

The higher the proportion of words classified as “difficult”, the higher, or more difficult, the passage rating will be. Word difficulty affects readability in the following ways:

- (a) Over-reliance on words with three or more syllables increases the difficulty rating of the passage.
- (b) Over-reliance on words not found in the Dale-Chall list of familiar words increases passage difficulty. The Dale-Chall list has been expanded to include those words that are familiar to residents near nuclear power plants. These words are: nuclear, atomic, emergency, radiation, transportation, evacuation and sheltering.

Language usually described, as “bureaucratic” should be avoided. Language of an overly technical, legalistic, formal and “official” tone is difficult to interpret and should be avoided. Everyday terms and expressions should be used wherever possible. It is important to remember that terminology familiar to public information preparers and reviewers may not be familiar to the public.

Emergency information materials prepared for the agricultural community will include a variety of agricultural terms, the use of which can result in higher readability ratings when evaluated using traditional readability formulae. While such terms may not be part of the reading vocabulary of the general population, they should be familiar to members of the agricultural community.

The guiding principle in developing readable and easily understood public information materials should be brevity, clarity, and simplicity. The use of legalistic and technical language, however precise, tends to defeat the purpose of comprehensibility.

3. Graphic Design.

Graphic design is one of the more subjective factors affecting comprehensibility. While readability can be assessed through the application of formulae, there are no such yardsticks to judge graphic design. Effective graphic design reduces the level of effort needed for comprehension, motivates interest and makes a clear impression. It can clearly establish the purpose of the material while emphasizing the content and meaning of important sections. Since written information is picked up in very brief intervals, it is important to provide adequate visual relief in text material.

The cover design provides the best opportunity for motivating interest, establishing personal relevance and setting the purpose of the document.

Experienced graphic designers or other qualified professionals should be involved in the early stages of planning emergency public information materials to ensure that the design accomplishes its purpose. It should attract attention, communicate the importance of the message in the text, and make the message easy to understand. Graphic design elements should complement and reinforce the basic message in the text. The design should always reinforce the function of a document, strengthen it and make it even more useful. Graphic design relies on the careful mix of several elements:

a. *Typography.*

The function of typography is to make the message legible and easy to read. To fulfill this function, typography depends on: style (boldface, italics, etc.); font (Boldface, Optima, and other type faces); size (6-point, 10-point, 18-point, etc.); and size of column or block of type, i.e., how much white space surrounds the type.

As a general rule, emergency information materials should use text type that is 10-points or larger to make it easy to read. Readability research indicates that simple sans serif type is easier to perceive than a more elaborate serif or old-world font. There should be a comfortable balance between the type and white space between the lines - too little space is a strain on the eye; too much prevents the reader from organizing the concepts in a logical progression. Generally, the more white space around a column of type, the more the words stand out.

b. *Layout and Design.*

The function of layout and design is to present the printed material in a way that will attract attention and assist with comprehension. Good design can stimulate and reinforce the message and, through clarity, aid in understanding the material. To fulfill its function, layout and design rely on: format (choice of pamphlet, brochure, calendar, etc.); size and shape of columns and type blocks contained in the printed piece (e.g., justified - straight or flush margins, unjustified - right margin ragged); location and size of photographs and art work within the publication; type of paper used, and choice of colors.

Make effective use of type size and font. Use bold and oversize type. Using color and shading to further highlight important information is also recommended. Easy-to-read materials do not pack too much information into small spaces. Graphic elements that reinforce the emergency message and aid in the quick location and comprehension of information should be included in the layout and design strategy. Photographs and artwork should be located adjacent to corresponding textual passages. An evacuation map, for example, should appear whenever possible on the same page as written evacuation instructions to prevent flipping back-and-forth between pages.

Use logical, carefully sequenced patterns of organization. Provide organizational clarity with clearly marked headings such as tabs with topic headings, clear outline or question and answer text formats, tables of contents in an outline form, marginal topic headings in contrasting type sizes, colors, graphic symbols, or other organizational aids.

c. *Photographs and Art Work.*

The purpose of artwork and photographs in graphic design is to enhance the message, offer visual materials, and attract readers' interest.

Photographs and artwork should highlight the subject matter that requires the most attention. Photographs and artwork can be used in a variety of creative ways to be effective. Carefully select the subjects that require highlighting and be sure the printer reproduces the artwork or photographs in a way that meets the intent of the material.

Use of maps, charts and symbols can assist in comprehension. When maps are used, they should be developed for use by an unskilled map-reader. The use of color and half-tone shading to minimize confusion and highlight the evacuation routes, EPZ sectors, reception centers or congregate care facilities can be very effective. Too much detail can be as confusing as too little. Evacuation routes and the location of congregate care centers, etc. should be checked before publication to ensure that they accurately reflect current highway and geographical conditions in the area. Tables and charts should be accurately correlated to the text, maps, or other illustrations to which they refer.

Key symbols or graphic images should be used to identify important concepts or signal important sections of emergency information. The use of the universal symbol for the handicapped, for example, would aid the handicapped in quickly locating pertinent information. These symbols, when used in both a table of contents and correlated passages serve to aid in quickly locating needed information.

d. *Color.*

The function of color in printed materials should be to enhance the printed materials by making them more attractive, create a particular image, or attract the eye to an important passage or figure (map, chart, etc.). Since color can call attention to certain parts of the publication or text, it can be used to best advantage in the area of emergency instructions. The choice of colors to use should be considered carefully by taking into account the

color comprehension limitations of color-blind individuals. Where this is a problem, specific public information materials should be prepared and provided to these individuals.

e. *Paper.*

Paper choice in graphic design serves many functions. It should provide enough substance to survive shipping, mailing, and ultimate use.

Choice of paper stock should give a particular image to the information materials - that of importance. The paper choice should result in a good quality printed image, permit the clear, crisp reproduction of photographs and art work, result in smooth folds, and fit the image of the materials (e.g., use of old-style parchment for high-tech materials on satellite technology normally would be inappropriate).

All graphic design elements should be considered both individually and as they interact with each other to produce the desired objectives of the publication.

II. EMERGENCY BROADCAST PROCESS AND INSTRUCTIONS

The careful preparation of information and instructions to be made available to the public through Emergency Alert System broadcast messages and follow up Special News Broadcasts are an essential facet of preparedness. Typically, the EAS is used for this purpose; however, other means, such as the National Oceanic and Atmospheric Administration (NOAA) weather service or other broadcast media, may be used. This notification should be made promptly and be accompanied by an explanation of the existing situation and accurate statements of the protective action decisions (if any). When time constraints for the EAS message limits the inclusion of requisite information and instruction to the public, Special News Broadcasts should immediately follow the EAS message to include this necessary information and instruction.

Emergency instructions and informational messages should be clear, succinct and complete; demonstrate authority; and be presented in an appropriate style or format.

Procedures for providing emergency information and instructions are discussed in FEMA-CPG-1-40, "Emergency Alert System," and FEMA-CPG-1-41, "Emergency Alert System, A Program Guide for State and Local Jurisdictions." In addition, pre-distributed emergency public information brochures discussed in Section I are an important resource during a radiological emergency. With all of these resources available, emergency broadcast messages should be information developed with one objective: to provide information on the status of a radiological emergency and inform the public about what actions (e.g., evacuation or shelter) they should take to protect themselves. By focusing on this objective, emergency broadcast messages can be kept relatively short. Thus, broadcasts can provide important instructions quickly and instructions can be rebroadcast at periodic intervals. If the emergency situation warrants, Special News Broadcasts may be used to better inform and instruct the public.

Section I — Introduction

A. Coordination

There should be clear and direct lines of communication between the protective action decision making authority, the preparer of emergency broadcast messages, and the person responsible for activation of the EAS or other broadcast media and actual delivery of the message. If possible, these individuals should be co-located. If not, dedicated telephone lines and committed facsimile or modem capabilities should be available to allow both oral communication and transmission of hard copy information. Backup communication systems, such as encrypted VHR radios or cellular telephones, should be designated and available for this purpose. It is particularly important that the person making protective action decisions review emergency broadcast messages, preferably a hard copy, prior to broadcast. All parties involved in the alert and notification process should thoroughly coordinate their activities relative to the activation of the alerting system and development and dissemination of the EAS message.

This coordination should include information about the scheduled times for alert and notification, the essential text of the EAS message, including identification of the emergency status and authorized protective action decisions. When possible, hard copies of EAS messages should be transmitted to each of the relevant parties prior to broadcast.

When multiple jurisdictions have authority for emergency broadcast activation, it is important to coordinate both message content and the timing of the message delivery. The coordination of messages cannot occur unless there is effective communication among all parties responsible for providing information to be used in the EAS messages. Ideally, there should be a dedicated capability for simultaneous, multiparty communications. This can minimize critical time delays in reaching concurrence on EAS messages and in implementing activation procedures. In an actual emergency, many radio and television stations will be on the air continuously reporting on the status of the emergency and providing supplemental information to the public. Thus, the EAS message can be clearly differentiated from other messages and focus on pertinent protective actions to be taken by the affected person.

B. Content

Emergency broadcast messages should be developed to include the following content elements as appropriate:

1. Identification of the authority (e.g., governor or mayor) issuing the emergency message.
2. Description of the accident. The nature and extent of the emergency should be described in terms understandable to the public and should include ECL status.
3. Subsequent EAS messages should include all new information.
4. Clear identification of the audience. The message should convey who is at risk and for whom protection actions are intended through familiar landmark descriptions, e.g., rivers, railroad tracks, interstate highways, buildings, local government jurisdictions (counties, townships, villages, and towns) or zip codes, and be specified in the plan. If appropriate,

Section I — Introduction

reassuring information to guide the actions of those who are not in the immediate area where protection actions are warranted may be provided.

5. Information on sheltering. Sheltering instructions should be provided. Instructions should be provided for transients as well as information regarding restricted access areas. Provisions for children in schools in affected areas should be described.
6. Information on evacuation. Evacuation instructions should include who is to go, where to go, and how to get there, i.e., the population at risk, evacuation routes, and the location of reception/congregate care centers. When appropriate, the EAS message may include information for:
 - transportation-dependent
 - handicapped
 - institutionalized persons
 - parents regarding their children in school or day care centers
 - evacuees on ad hoc respiratory protection
7. Emergency “hotline” telephone numbers should be provided for those needing special assistance and for public inquiries.
8. When the administration of radioprotective drugs, e.g., potassium iodide, is recommended, procedures for obtaining medication and instructions for its use should be provided.
9. When early ingestion pathway protective measures are recommended, instructions for their implementation (e.g., wash fruits and vegetables gathered from gardens) should be provided.
10. Instructions to stay tuned to the emergency broadcast stations should include indications at the end of the broadcast on the need for a special news broadcast to follow immediately or when additional information can be expected. This should be considered, even when there is no new information at the next scheduled broadcast.

C. Comprehensibility

1. Language.

EAS broadcast messages should be presented with clear language that adequately conveys the significance of the information while succinctly specifying the needed emergency actions. Geographical locations should be expressed in familiar terms, using well known references and landmarks. Legal descriptions or map coordinates should be avoided.

2. Brevity.

Communications specialists indicate that emergency broadcast messages should be as short as possible in order for the public to comprehend the content of the messages. While it may be possible to develop and broadcast short messages of several minutes in length for natural hazards, it is difficult to develop EAS broadcast messages for commercial nuclear power plant accidents within this time frame because of the need to link protective actions decisions to impacted familiar landmarks and multiple reception centers.

Thus, State and local governments involved in radiological emergency preparedness should attempt to develop prescribed emergency broadcast messages that are as short and succinct as possible, but sufficient in length to adequately address the items listed in Section II.B., as appropriate to the emergency situation and protective action implementation. EAS messages are generally up to 2 minutes in length. If the emergency situation warrants, Special News Broadcasts may be used immediately following the relatively brief EAS message to provide additional information and instruction to the public.

3. Clarity and Coherence.

Clarity and coherence of content presentation are essential in order to promote prompt and appropriate actions. The message should specify the site of the emergency, circumstances and other conditions related to the emergency. Emergency broadcast messages should provide a smooth flow and logical sequence of information.

4. Consistency and Comprehensiveness

The content of EAS broadcast messages should be consistent with the State or local plan, annually distributed public emergency information materials, and previously broadcasted messages. The message should reference public emergency information materials that provide reinforcement and non-vital information. When circumstances dictate that information relayed over the EAS broadcast stations differ from that included in previously distributed and broadcast emergency information materials, such differences should be clearly identified to avoid confusion.

5. Repetition.

Repetition is also a very important element of an effective EAS broadcast system. Effective messages should include repetition of the key information, as well as a regularly scheduled repeating of all messages until new information is available and messages are updated. Repetitions serve to confirm important information about purpose, context, source and emergency actions expected of the public. It is possible that during the emergency a radio or television station may provide continuous reporting on the response to the emergency.

D. Format

Pre-scripted EAS broadcast messages can contribute to important time savings when the rapid flow of information is essential. Several things should be considered in selecting a format for pre-scripted messages. The chosen format should enable the development of clear, accurate and complete messages in a minimum amount of time.

A decision should be made as to the number of pre-scripted messages that should be prepared.

Procedures should be established for reviewing messages prior to broadcast to ensure that:

1. The newest or most vital information is presented near the beginning of the message.
2. The message is organized so that all similar information is presented together.
3. Any changes in emergency status or protective action decisions are delineated.
4. Information no longer applicable is deleted.
5. Information contained in the message is consistent.
6. All protective action decisions are contained in the message, including those from earlier broadcasts.
7. The status of all affected areas, including any areas where protective actions identified in previous broadcasts have been lifted, is presented.
8. Message content is clear and concise.
9. Both new and critical information is repeated within the message.

E. Delivery

Responsible offsite response organizations should have the capability to provide both an alert signal and an instructional message within the 10-mile EPZ within about 15 minutes {exercise goal: in a timely manner (urgently and without undue delay)} of the decision by authorized offsite officials to activate the alert and notification system. (A possible exception to this exists in sparsely populated areas between 5 miles and 10 miles from the nuclear power plant where, in exception areas approved by FEMA, the time can be extended to 45 minutes.) This timely-capability is a critical element of the prompt public emergency notification system.

The person having the responsibility for physically activating the EAS broadcast station should act only after receiving instruction from the designated offsite official vested with the decision-making authority to issue protective action decisions and authorize activation.

Timing of alert signals and media message broadcasts should be closely coordinated. Procedures should be established to ensure that there is close coordination with parties responsible for siren activation (or other alerting mechanisms) and EAS broadcast activation are aware of the scheduled time for both events. These procedures should ensure that emergency messages are broadcast immediately following cessation of the siren, or at least within five minutes after, siren activation.

It is important that all designated radio and television stations broadcast the message at the designated time. The EPZ population should have a listing of EAS broadcast stations and instructions to immediately tune to one of these stations when alerted. A capability should exist for monitoring these stations to ensure that messages are broadcast at the designated time and repeated with the designated frequency, e.g., every 15 minutes.

A well-coordinated emergency broadcast program requires 24-hour-staffing capability with competent and knowledgeable personnel. Individuals tasked with preparation of instructional messages and with activation of the EAS broadcast system should be properly trained. They should know how, and by whom, they will be notified to initiate the EAS broadcast message and activate the EAS broadcast stations. They should be familiar with procedures for: message development, coordination of message content and delivery with participating jurisdictions, establishment of communication with primary and backup EAS stations and completion of the authentication process. Personnel should be properly trained in the operation of their primary and backup equipment. This primary and backup equipment, especially equipment necessary for emergency broadcast activation, should be checked periodically to make sure that it is operational. Substitute personnel should be identified and trained in the event that primary personnel are unavailable to perform these tasks.

In summary, EAS broadcast messages are the primary vehicles for transmitting important emergency instructions and information to the public. They should be clear, concise, simply stated, and authoritative if they are to be effective. With careful planning and a flexible, imaginative approach to the form and content of EAS broadcast messages, this goal can be achieved.

APPENDIX A

EMERGENCY EDUCATION AND INFORMATION
TECHNIQUES GUIDANCE CHECKLIST

The public should be familiar with the general subject matter of commercial nuclear power plant emergencies and related emergency procedures. When the public is well informed about nuclear power plant emergency procedures, they will better understand written materials and emergency instructions. Effective preparedness depends on the existence of an ongoing, comprehensive public education effort that well-designed emergency information materials can provide.

The need for education efforts and activities at the community level increase awareness about emergency self-protection. These efforts should go beyond the distribution of materials. The following items should be considered when developing or reviewing emergency public information and education materials.

<u>Yes/No</u>	<u>Public Information and Education Materials</u>
_____	Information and educational materials have clear emergency focus. They explain what to expect and in what sequence, and what actions, in order of priority, should be taken.
_____	The content is consistent with the State or local plans, public information materials, and EAS broadcast messages.
_____	When the emergency plan calls for an emergency telephone number, it is provided with instructions on the procedures to be followed. "Hotline" telephone numbers for use during emergencies are separate from information numbers used during non-emergencies.
_____	A contact is provided for additional information.
_____	Rumor control numbers are provided.
_____	Information is provided regarding alert and notification procedures.
_____	Identification of emergency broadcast stations is provided.
_____	A highly visible statement is placed on the cover that identifies the materials as emergency instructions or information for use during an emergency.
_____	Very basic information on the emergency hazard is included in the emergency information materials in order to inform the public of potential health implications.

Section I — Introduction

- _____ Sheltering is defined according to the State or local plan.
- _____ Steps to enhance sheltering should be provided.
- _____ Evacuation routes are described in the text and illustrated directions on an evacuation map of the EPZ.
- _____ Transportation provisions are included.
- _____ School provisions, including guidelines or instructions for parents, are included.
- _____ Instruction on the care and feeding of livestock, if appropriate to the area, is included.
- _____ Reception centers or congregate care centers are listed.
- _____ Provisions for the hearing- and mobility-impaired are given.
- _____ Public education passages, if included, are not distracting.
- _____ Information regarding emergency classification levels is included. Enough educational information on radiation is given to provide an understanding of sources and relative effects, or this information is provided in separate materials.
- _____ Information is provided for transients and visitors through appropriate means.
- _____ The system for addressing the needs of special populations is identified.
- _____ Radioprotective drugs such as potassium iodide (if adopted by State or local government agencies for use by the general public) are explained.
- _____ The public is encouraged to alert neighbors, by means other than the telephone, to ensure that they also heard and understood the warning signals.
- _____ Pertinent information is included relative to agricultural interests (farmers, food processors, etc.) in the ingestion pathway EPZ.
- _____ An emergency supplies checklist to have in the home is included.
- _____ A supplies checklist for use during evacuation is included.
- _____ Home preparation for sheltering is discussed.

Section I — Introduction

- _____ Home preparation for evacuation is discussed.
- _____ General education material, if included, is placed after the emergency Sprocedures information.
- _____ A section on family preplanning is provided.
- _____ The layout is easy to follow from paragraph to paragraph and from page to page. Page and section breaks are consistent with the logic and organization of the materials.
- _____ The information is presented in a logical sequence of topics. The “flow” of information is smooth and not disjointed.
- _____ Within a given topic, actions to be taken come first, followed by rationale or explanation.
- _____ Vocabulary is simple, comprised of non-technical terms likely to be found in the vocabularies of the intended population.
- _____ Sentences are brief and concise.
- _____ Typography is easy to read.
- _____ The cover clearly states that the document contains important emergency instructions.
- _____ The choice of colors is appropriate for colorblind individuals.
- _____ The reading level is appropriate based on one of the following:
 - _____ The entire emergency procedures section has a reading level of grade 9 or below, as characterized by the Dale-Chall readability formula or
 - _____ The entire emergency procedures section has a reading level equivalent to that of the target audience, as characterized by the Dale-Chall readability formula.
- _____ The format is appropriate for the emergency information included in the document, and the size is appropriate.
- _____ Photographs, maps, charts, tables, and artwork are used effectively to enhance the text and are not distracting.

Section I — Introduction

_____ The various elements of graphic design work together harmoniously to achieve the desired effect.

_____ The date of issue and the name of the issuing agency are clearly indicated.

_____ Blank space is provided in the emergency procedures section for personal notes.

_____ Key symbols or graphic images are used to assist in locating and/or understanding the text.

_____ The format encourages retention.

_____ Color is used to enhance and highlight important details about the emergency information.

Emergency Alert System Messages

_____ Public EAS broadcast instructions have a clear emergency focus and explain what to do.

_____ Instructions are consistent with the State or local plan, public information materials, and previous EAS messages.

_____ When the public is referred to written materials, this reference can be easily understood.

_____ The emergency instructions are released by a recognized State or local authority.

_____ There is a statement on when this information will be updated.

_____ The emergency broadcast messages are presented in a foreign language when appropriate.

_____ Sentences are brief and easy to understand.

_____ Messages are internally consistent.

_____ Messages inform the public located within areas under protective action decisions and those outside those areas via the use of relevant geographic landmark description.

APPENDIX B

INGESTION EXPOSURE PATHWAY BROCHURE CHECKLIST

STATE: _____ DATE: _____

SITE: _____ FEMA REGION: _____

TITLE OF BROCHURE: _____

DATE OF BROCHURE: _____

AREAS OF REVIEW FOR CONTENT

	YES	NO
1. Does the brochure contain a statement of purpose?		
2. Is the content of the brochure consistent with the applicable State and local radiological response plans?		
3. Is the brochure dated?		
4. Does the brochure identify the issuing agency and contact location for obtain additional copies of the brochure?		
5. Does the brochure indicate where additional information or answers to questions on radiological situations can be obtained?		
6. Is there an explanation of emergency protective actions performed prior to and during an emergency?		
7. Are there examples of emergency protective actions to be performed prior to and during an emergency?		
8. Are protective actions provided for all types of agricultural products in the ingestion pathway for the site, including the following:		
a. Milk		
b. Vegetables and Fruits		
c. Meat and Meat Products		
d. Poultry		

Section I — Introduction

e. Grains			
f. Water			
g. Fish and Marine Life			
h. Honey			
i. Other products			
9. Are the affects of radiation and radioactive material deposits on the human food supply clearly stated?			
10. Does the brochure explain how the farmers, food processors, and distributors will be notified of an emergency?			
11. Does the brochure explain how the farmers, food processors and distributors will be advised of appropriate actions to take?			
12. Are there sources mentioned where further information may be obtained during an emergency?			
13. Are area EAS Stations listed, including radio stations and TV channels?			
14. Are references to EAS Stations positioned in prominent places in the brochure?			
15. Are telephone numbers of appropriate State/Local Emergency Management and/or Agriculture offices included in the brochure?			
16. Is the brochure easy to read and easy to understand?			
17. If appropriate, are brochures available in a non-English language edition?			
18. Does the brochure provide space for personnel notes or listing of additional telephone numbers, etc.?			

PROVIDE ADDITIONAL COMMENTS ON THE BROCHURE ON AN ATTACHED SHEET OF PAPER, IF NECESSARY.

APPENDIX C

REFERENCE MATERIALS

1. 44 CFR 350, Review and Approval of State and Local Radiological Emergency Plans and Preparedness; Federal Register, September 28, 1983.
2. 44 CFR 351, Radiological Emergency Planning and Preparedness; Federal Register, March 11, 1992.
3. NUREG-0654/FEMA-REP- 1, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants; Federal Emergency Management Agency, Washington, D.C., November 1980.
4. FEMA-REP-14, Radiological Emergency Preparedness Program Exercise Manual; Federal Emergency Management Agency, Washington, D.C., September 1991.
5. Guidance Memorandum 20, Foreign Language Translation of Public Education Brochures; Federal Emergency Management Agency, Washington, D.C., October 19, 1983.
6. Guidance Memorandum 24, Radiological Emergency Preparedness for Handicapped Persons; Federal Emergency Management Agency, Washington, D.C., April 5, 1984.
7. Disaster Handbook for Extension Agents, U.S. Department of Agriculture, Washington, D.C.

II. REP PROGRAM POLICY AND GUIDANCE

Section under review — to be provided when complete.

Section II — Policy and Guidance

III. REP EXERCISE GUIDELINES

A. MILESTONES AND TASKS

The Radiological Emergency Preparedness (REP) exercise process is an interrelated set of activities and functions involving many organizations. These activities and functions have been consolidated into 22 separate tasks listed in Table 2 below. While the titles of each task reflect the activities and functions of all organizations involved in the process, the content of the tasks reflects the specific responsibilities of the Federal Emergency Management Agency (FEMA) and supporting Regional Assistance Committee (RAC) members. Table 3 gives the milestones for the 22 tasks.

TABLE 2 Generic REP Exercise Tasks

No.	Task
1.	Establish exercise date
2.	Prepare Work Order for Contract Support
3.	Establish exercise evaluation area criteria and extent-of-play
4.	Develop and review exercise scenario
5.	Establish exercise ground rules
6.	Request, assign and confirm evaluators
7.	Arrange logistics
8.	Prepare and distribute evaluator assignment packets
9.	Provide site-specific training to evaluators
10.	Conduct pre-exercise briefing
11.	Document organizational exercise performance
12.	Conduct post-exercise evaluator/participant interview
13.	Debrief exercise evaluators and initiate consultation process
14.	Prepare written evaluation
15.	Conduct post-exercise participants briefing
16.	Conduct the participants meeting that is open to the public
17.	Conduct 350 Approval Process Meeting
18.	Notify state of Deficiencies
19.	Prepare exercise report
20.	Evaluate and report on remedial exercise or drill
21.	Track correction of Areas Requiring Corrective Action (ARCAs)
22.	Track demonstration of exercise evaluation areas

Section III.A — Milestones and Tasks

Tasks 1 – 9 and 21 and 22 are the basic exercise planning tasks. Tasks 1 – 9 should be completed with consideration of the results of previous exercises. Tasks 10 – 16 and 19 and 20 are associated with the conduct of exercise and the evaluation of the performance of exercise participants. The sequential completion of these tasks is essential for FEMA’s consultation with involved OROs and for the development of the documentation upon which FEMA findings are based. Tasks 18 and 20 should be completed whenever the evaluation of exercise performance reveals inadequacies that should be corrected within 120 days of the exercise. These results are provided through feedback from Tasks 21 and 22 for one or more previous exercises.

Task 22 contributes to the overall management of the exercise process by providing critical information on the status of the demonstration of objectives in exercises conducted by response organizations within six-year periods.

TABLE 3 Milestones for REP Exercise Process

Time (No later than X days before/after exercise)	Task	Milestone
365	1	Exercise date established.
120	2	Preparing work order for contract support
90	3	Submission of exercise evaluation areas and review of exercise evaluation area tracking per Task 22 of previous exercise.
75	3	Complete FEMA and NRC review of evaluation areas and establish extent-of-play agreements.
60	4	Exercise scenario submitted for FEMA review.
60	5	Exercise ground rules established.
45	6	Evaluators requested, assigned and confirmed.
	4	FEMA and NRC review of exercise scenario completed.
30	7	Logistics arranged.
15	4	Final scenario adjustments completed.
14	8	Evaluator packets prepared and distributed.
1	9	Site-specific evaluator training completed.
1	10	Pre-exercise briefing conducted.
Exercise day (ED)	11	Organizational performance during exercise documented.
ED	12	Post-exercise evaluator/participant interviews conducted.
ED + 1	13	Post-exercise evaluator debriefing conducted.
ED + 2	13	RAC Chair initiates consultation process for Deficiencies.

TABLE 3 (Cont.)

Time (No later than X days before/after exercise)	Task	Milestone
ED + 2	14	Evaluation Modules including Narratives and any issues (as appropriate) completed and submitted to RAC Chair.
ED + 2	15	Post-exercise participants briefing conducted.
ED + 2	16	Participants meeting that is open to the public conducted.
ED + 2	17	Conduct 350 Approval Process Meeting
ED + 10	18	Official notification of identified Deficiencies through letter from FEMA Regional Director (RD) (consistent with consultation with FEMA HQ) to State, NRC HQ, and RAC, with information copy to Licensee.
ED + 20	18	State acknowledges receipt of Deficiency letter and proposes schedule for remedial actions.
ED + 30	19	Draft exercise report provided by region to ORO for review.
ED + 60	19	Draft exercise report comments due back from ORO to FEMA Region.
ED + 90	19	Final exercise report issued by the FEMA Region.
ED + 120	20	Remedial exercise or drill conducted and evaluated, as necessary, to correct Deficiencies.
Next biennial exercise	21	Demonstrate correction of exercise ARCAs completed.
Ongoing	22	Track demonstration of exercise evaluation areas

TASK 1: ESTABLISH EXERCISE DATE

Description

The date(s) when the REP exercise will be conducted is established through a consultation process involving State and local governments, other organizations that will participate in the exercise, involved FEMA Regional Offices, RAC members, and the Licensee. When the exercise is scheduled, the FEMA Regional Office informs FEMA HQ of the date. The date(s) is established to meet specific regulatory requirements.

Milestone

The preferred milestone date for completion of this task is 365 days in advance of the exercise. It is recognized that as a result of the consultative process described above, this date may be negotiated at some figure less than 365 days. It is recommended that the date provide at least six months for exercise preparation and planning. Modifications to the agreed-upon date may be necessary to accommodate unforeseen scheduling conflicts.

References

44 CFR Part 350.9.

Products

Specific date(s) on which the exercise will occur.

Guidance

For States requesting FEMA approval of radiological emergency plans under the FEMA rule 44 CFR Part 350, the State, involved local governments, and other support organizations should participate in a qualifying exercise. Once the qualifying exercise provision has been met, joint exercises should be conducted biennially (i.e., every two years) under the provisions of 44 CFR Part 350.9 (c)(1)-(4) and 10 CFR Part 50, Appendix E, F.3, and by December 31 of the second year following the exercise. For example, if the first biennial exercise is completed in March 2001, the second exercise should be completed by the end of December 2003.

TASK 1: ESTABLISH EXERCISE DATE

Pre-operational exercises, under the NRC rule 10 CFR Part 50, Appendix E, F.1., shall be conducted no more than two years prior to NRC issuing an operating license to Licensees. These exercises should be jointly scheduled by involved State and local organizations, RAC members, the Licensee, and other responsible parties with FEMA and NRC concurrence.

When two FEMA Regions are involved in the same exercise, the host Regional Office should have the lead FEMA role in establishing dates for exercises. The host Regional Office is the FEMA Region where a commercial nuclear power plant is located.

TASK 2: PREPARE WORK ORDER FOR CONTRACT SUPPORT

Description

Based on the Evaluation Area Criteria selected for the exercise, the RAC Chair/Site Specialist determines the number and type of contractor support personnel required for the exercise and prepares the Work Order Request.

Milestone

This task shall be completed and submitted to FEMA Headquarters 120 days prior to the exercise.

References

Federal Emergency Management Agency, *Radiological Emergency Preparedness Off-Site Exercise and Program Support Contract Administration Guidance Manual*, September 2000 as amended.

Products

A completed Work Order which has been prepared in accordance with Section 5 (“Processing Work Orders”) and Appendix A (“Boilerplate Sample Exercise Work Order”) of the *REP Off-Site Exercise and Program Support Contract Administration Manual*.

Guidance

Work Orders should be both as simple and as detailed as possible. Particular detail is necessary under the **Work Required** section to insure that the appropriate numbers and types of evaluators/support personnel are assigned to fit the specific exercise or task. The **Period of Performance** should be inclusive of the earliest possible date that the Scenario Reviewer (Subject Matter Expert – SME) may began work and the latest possible date that report review or completion may take place. While the **Description** section is fairly standard, it is important to provide your best estimate of the hours of work needed by the type of support required.

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

Description

The RAC Chair establishes a set of evaluation area criteria for each exercise by negotiations with OROs, RAC members, and the Licensee. Responsibility for the demonstration of selected evaluation area criteria is assigned to various participating OROs. Extent-of-play agreements are negotiated, documented, and provided to the evaluator in order to establish the type and level of demonstration for all assigned evaluation area criteria.

Milestone

The State and Licensee submit evaluation area criteria 90 days prior to the exercise. FEMA and NRC Regional Offices should complete their review of exercise evaluation area criteria 75 days prior to the exercise. Extent-of-play agreements should also be completed 75 days prior to the exercise.

References

44 CFR Part 350.2 (j), (k), NUREG-0654.

Products

List of specific exercise evaluation area criteria and extent-of-play agreements for each ORO.

Guidance

There are two levels of participation in REP exercises, full and partial. Full participation primarily refers to each organization demonstrating all of the emergency phase capabilities outlined in its plan, including facility and field-based functions. Partial participation primarily means that field activities are not demonstrated.

Plume Pathway Exercises: This guidance applies to exercises when there is no exercise play involving the ingestion exposure pathway and relocation, reentry, and return functions (plume-only exercises).

State and local governments should fully participate in an exercise at one site twice every six years. For States with more than one site, the State should rotate this full participation among sites and partially participate at all the others. Local governments with plume planning responsibilities for more than one site may request permission to partially participate. If full participation poses an undue hardship on local governments, requests for exemption from full participation should be submitted to the FEMA Regional Office, which will in turn forward the request to FEMA Headquarters.

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

When partially participating in an exercise, States do not need to demonstrate field activities (e.g., field radiological monitoring); however, they should demonstrate direction and control, communications, accident assessment, and protective action decision-making functions.

Partial participation by local governments (when approved) means that the organization's emergency operating center is activated, but that there is limited demonstration of field activities.

Out-of-Sequence Demonstrations: Out-of-sequence demonstrations are those activities and resources derived from the offsite response plan and included as part of a comprehensive REP exercise that can be separated from the exercise. These activities and resources can be treated as independent elements of the emergency response. Negotiations during the development of the extent-of-play agreement will be used to determine those activities that will be demonstrated out-of-sequence with the plume pathway exercise, but will be considered part of it for exercise reporting purposes. The RAC Chair makes the final decision on what, if anything, is acceptable for out-of-sequence demonstrations. An example of an out-of-sequence demonstration should be the evaluation of a reception center which is activated for the purpose of radiologically monitoring and decontaminating evacuees. Possible emergency response elements which may be demonstrated out-of-sequence are provided in the Federal Evaluation Process Matrix (Table 4).

Post-Plume Exercises: This guidance applies to exercises involving post-plume protective action decision making and implementation.

A State should fully participate in the post-plume portion of exercises at least once every six years. In States with more than one site, the State should rotate this participation from site to site. Partial participation by a State in post-plume activities at sites within that State is not required. During the year in which the full-participation post-plume exercise is held at one of the sites, the responsible State and local governments should review their plans and procedures for the other sites within the State to verify their accuracy and completeness. This review should validate the identification of farms, food processors, and distributors. This review and any resultant revisions should be made and reported in the Annual Letter of Certification, as part of their annual review and plan update.

A State that has post-plume-related responsibilities for a site located within its borders and that is also within the 50-mile ingestion exposure pathway of a site located in a bordering State should partially participate in all of the post-plume-related exercises for those bordering State sites. States that do not have a power plant located within their borders, but are located within the 50-mile EPZ of a bordering State's power plant, should fully participate in at least one exercise every six years.

Since local governments are not usually required to develop and test post-plume plans and preparedness, State officials would be the emergency personnel primarily involved in the post-plume portion of exercises. However, in some States, local governments have responsibilities that require their participation in such exercises. The number and function of personnel needed should be sufficient for carrying out those protective action measures that are necessitated by a particular

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

accident scenario. Also, organizations fully participating in the post-plume portion of an exercise should deploy field teams to secure and analyze media samples as required by the accident scenario.

As stated above, State officials would be the emergency personnel primarily involved in the post-plume portion of exercises. The number and function of State personnel needed should be determined on the basis of verifying capabilities for carrying out the following responsibilities: direction and control, communications, accident assessment, protective action decision making, and dissemination of emergency information to the general public and or organizations involved with post-plume protective actions. Organizations partially participating in the post-plume portion of an exercise need not deploy field teams (e.g., to secure and analyze media samples), as such activities can be simulated.

The REP exercise evaluation area criteria restate, in a functional manner, those planning standards and evaluation criteria of NUREG-0654 that can be demonstrated and observed in exercises. Each evaluation area criteria refers to ORO capabilities to perform emergency functions, such as communicating among response organizations, dose assessment, and alerting and notifying the public through implementation of plans. Collectively, these evaluation area criteria cover the full range of functional capabilities that should be demonstrated by OROs participating in exercises conducted to secure or retain FEMA approval of plans and preparedness under the FEMA rule, 44 CFR Part 350.

Some evaluation area criteria are core functions and activities that must be demonstrated during each exercise. Some evaluation area criteria focus on fundamental radiological emergency response capabilities and should be demonstrated in every exercise by some organizations. The specific participating organizations are determined by scenario events and exercise play. This contrasts with the evaluation area criteria mentioned above, which should be demonstrated by all organizations in every exercise. Evaluation area criteria should be demonstrated at least once every six years by every ORO with responsibility for them.

Other evaluation area criteria focus on important emergency preparedness capabilities that should be demonstrated at least once every six years by each organization with responsibility for them, as determined by the organization's plans and procedures. To determine the frequency of the evaluation area criteria, refer to the Federal Evaluation Process Matrix (Table 4).

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 4 Federal Evaluation Process Matrix^a

Evaluation Area and Sub-Elements	Consolidates REP-14 Objective(s)	Minimum Frequency^b
1. Emergency Operations Management	1, 2, 3, 4, 5, 14, 17, 30	
a. Mobilization		Every Exercise
b. Facilities		Every Exercise
c. Direction and Control		Every Exercise
d. Communications Equipment		Every Exercise
e. Equipment and Supplies to Support Operations		Every Exercise
2. Protective Action Decisionmaking	5, 7, 9, 14, 15, 16, 17, 26, 28	
a. Emergency Worker Exposure Control		Every Exercise
b. Radiological Assessment & Protective Action Recommendations & Decisions for the Plume Phase of the Emergency		Every Exercise
c. Protective Action Decisions for the Protection of Special Populations		Every Exercise
d. Radiological Assessment and Decisionmaking for the Ingestion Exposure Pathway ^c		Once in 6 yrs.
e. Radiological Assessment & Decisionmaking Concerning Relocation, Reentry, and Return ^c		Once in 6 yrs.
3. Protective Action Implementation	5, 14, 15, 16, 17, 27, 29	
a. Implementation of Emergency Worker Exposure Control		Every Exercise
b. Implementation of KI Decision		Once in 6 yrs. ^d
c. Implementation of Protective Actions for Special Populations		Once in 6 yrs. ^e
d. Implementation of Traffic and Access Control ^f		Every Exercise
e. Implementation of Ingestion Pathway Decisions		Once in 6 yrs.
f. Implementation of Relocation, Reentry, and Return Decisions		Once in 6 yrs.

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 4 Federal Evaluation Process Matrix (cont'd)

Evaluation Area and Sub-Elements	Consolidates REP-14 Objective(s)	Minimum Frequency^b
4. Field Measurement and Analysis	6, 8, 24, 25	
a. Plume Phase Field Measurements and Analysis		Every Full-Participation Exercise ^b
b. Post-Plume Phase Field Measurements and Sampling		Once in 6 yrs.
c. Laboratory Operations		Once in 6 yrs.
5. Emergency Notification and Public Information	10, 11, 12, 13	
a.1 Activation of the Prompt Alert and Notification System		Every Exercise
a.3 Notification of Exception Areas and/or Backup Alert and Notification System within 45 Minutes		Every Exercise — as needed
b. Emergency Information and Instructions for the Public and the Media		Every Exercise
6. Support Operations/Facilities	18, 19, 20, 21, 22	
a. Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees		Once in 6 yrs. ^e
b. Monitoring and Decontamination of Emergency Worker Equipment		Once in 6 yrs. ^e
c. Temporary Care of Evacuees		Once in 6 yrs. ^g
d. Transportation and Treatment of Contaminated Individuals		Every Exercise

^a See Evaluation Criteria for specific requirements.

^b Each State within the 10-mile EPZ of a commercial nuclear power site shall fully participate in an exercise jointly with the licensee and appropriate local governments at least every two years. Each State with multiple sites within its boundaries shall fully participate in a joint exercise at some site on a rotational basis at least every two years. When not fully participating in an exercise at a site, the State shall partially participate at that site to support the full participation of the local governments.

^c The plume phase and the post-plume phase (ingestion, relocation, reentry and return) can be demonstrated separately.

^d Should be demonstrated in every biennial exercise by some organizations and should be demonstrated at least once every six years by every ORO with responsibility for implementation of KI decision.

^e All facilities must be evaluated once during the six-year exercise cycle.

^f Physical deployment of resources is not necessary.

^g Facilities managed by the American Red Cross (ARC), under the ARC/FEMA Memorandum of Understanding, will be evaluated once when designated or when substantial changes occur; all other facilities not managed by the ARC must be evaluated once in the six-year exercise cycle.

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

Prior to the promulgation of the current REP Evaluation Areas Exercise Methodology, REP Exercises were evaluated using the *Radiological Emergency Preparedness Manual* (FEMA-REP-14) and the *Radiological Emergency Preparedness Exercise Evaluation Criteria* (FEMA-REP-15). The following table cross-references the Evaluation Areas to the NUREG-0654 criteria and to the Objectives and Points of Review in FEMA-REP-14 and -15. This should be used when analyzing prior exercise reports and results in preparation for an upcoming exercise.

TABLE 5 Comparison of Proposed Evaluation Areas with NUREG-0654/FEMA-REP-1, Rev. 1 Planning Criteria and REP-14/15 Objectives and Criteria

EVALUATION AREA / Sub-element / Criterion	NUREG-0654 Criteria	REP-14/15 Objective & Criterion
1 – EMERGENCY OPERATIONS MANAGEMENT		1, 2, 3, 4, 5, 8,14, 17, 30
1.a – Mobilization		
1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner.	A.4; D.3,4; E.1,2; H.4	1.1, 1.2; 30
1.b – Facilities		
1.b.1: Facilities are sufficient to support the emergency response.	H.3	2.1
1.c – Direction and Control		
1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible.	A.1.d; A.2.a,b	3.1
1.d – Communications Equipment		
1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations.	F.1,2	4.1
1.e – Equipment and Supplies to Support Operations		
1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations.	H.7, 10; J.10.a,b,e; J.11; K.3.a	2.1; 5.1; 8.2; 14.2

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 5 Comparison of Proposed Evaluation Areas with NUREG-0654/FEMA-REP-1, Rev. 1 Planning Criteria and REP-14/15 Objectives and Criteria (cont'd)

2 – PROTECTIVE ACTION DECISION MAKING		5, 7, 9, 14, 15, 16, 26, 28
2.a – Emergency Worker Exposure Control		
2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides.	J.10.e,f; K.4	5.1, 5.3; 14.1
2.b – Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency		
2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions.	I.8,10; Supp. 3	7.1
2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PADs) for the general public (including the recommendation for the use of KI, if ORO policy).	J.9; J.10.f,m	9.1; 14.1
2.c – Protective Action Decisions Consideration for the Protection of Special Populations		
2.c.1: Protective action decisions are made, as appropriate, for special population groups.	J.9; J.10.d,e	9.1; 15.1; 16.1
2.d – Radiological Assessment and Decision-Making for the Ingestion Exposure Pathway		
2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO planning criteria.	J.9,11	26.1, 26.2
2.e – Radiological Assessment and Decision-Making Concerning Relocation, Reentry, and Return		
2.e.1: Timely relocation, reentry, and return decisions are made and coordinated as appropriate, based on assessments of radiological conditions and criteria in the ORO's plan and/or procedures.	I.10; J.9; M.1	28.1, 28.2, 28.3, 28.4, 28.5

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 5 Comparison of Proposed Evaluation Areas with NUREG-0654/FEMA-REP-1, Rev. 1 Planning Criteria and REP-14/15 Objectives and Criteria (cont'd)

3 – PROTECTIVE ACTION IMPLEMENTATION		5, 11, 14, 15, 16, 17, 27, 29
3.a – Implementation of Emergency Worker Exposure Control		
3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plan and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart.	K.3.a, 3.b	5.1, 5.2
3.b – Implementation of KI Decision		
3.b.1: KI and appropriate instructions are made available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals is maintained.	J.10.e	14.1, 14.3
3.c – Implementation of Protective Actions for Special Populations		
3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions.	J.10.c,d,g	15.1, 15.2
3.c.2: OROs/School officials implement protective actions for schools.	J.10.c,d,g	16.1, 16.2, 16.3
3.d – Implementation of Traffic and Access Control		
3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel.	J.10.g,j	17.1, 17.2, 17.3
3.d.2: Impediments to evacuation are identified and resolved.	J.10.k	17.4
3.e – Implementation of Ingestion Pathway Decisions		
3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions.	J.9,11	27.1
3.e.2: Appropriate measures, strategies and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production.	J.9,11	11.4; 27.2; 27.3
3.f – Implementation of Relocation, Reentry, and Return Decisions		
3.f.1: Decisions regarding controlled reentry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented.	M.1,3	29.1, 29.2, 29.3, 29.4

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 5 Comparison of Proposed Evaluation Areas with NUREG-0654/FEMA-REP-1, Rev. 1 Planning Criteria and REP-14/15 Objectives and Criteria (cont'd)

4 – FIELD MEASUREMENT AND ANALYSIS		6, 8, 24, 25
4.a – Plume Phase Field Measurement and Analyses		
4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates.	H.10; I.7,8,9	6.1; 8.1, 8.2
4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure.	I.8,11; J.10.a; H.12	6.3, 6.4
4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media.	I.9	6.4, 6.5; 8.3, 8.4, 8.5, 8.6
4.b – Post Plume Phase Field Measurements and Sampling		
4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (for example, food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making.	I.8; J.11	24.1
4.c – Laboratory Operations		
4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions.	C.3; J.11	25.1, 25.2

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 5 Comparison of Proposed Evaluation Areas with NUREG-0654/FEMA-REP-1, Rev. 1 Planning Criteria and REP-14/15 Objectives and Criteria (cont'd)

5 – EMERGENCY NOTIFICATION AND PUBLIC INFORMATION		10, 11, 12, 13
5.a – Activation of the Prompt Alert and Notification System		
5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance.	10 CFR Part 50, Appendix E.IV.D; E.5,6,7	10.1
5.a.2: [RESERVED]		
5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system.	Appendix 3: B.2.c; E.6	10.2, 10.3
5.b – Emergency Information and Instructions for the Public and the Media		
5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner.	E.5,7; G.3.a; G.4.c	11.1, 11.2, 11.3; 12.1, 12.2; 13.1, 13.2

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 5 Comparison of Proposed Evaluation Areas with NUREG-0654/FEMA-REP-1, Rev. 1 Planning Criteria and REP-14/15 Objectives and Criteria (cont'd)

6 – SUPPORT OPERATION/FACILITIES		18, 19, 20, 21, 22
6.a – Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees		
6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers.	J.10.h; J.12; K.5.a	18.1, 18.2, 18.3, 18.4, 18.5; 22.1, 22.2
6.b – Monitoring and Decontamination of Emergency Worker Equipment		
6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment, including vehicles.	K.5.b	22.1, 22.3
6.c – Temporary Care of Evacuees		
6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. (Found in MASS CARE – Preparedness Operations, ARC 3031) Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate before entering congregate care facilities.	J.10.h; J.12	19.1, 19.2
6.d – Transportation and Treatment of Contaminated Injured Individuals		
6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals.	F.2; H.10; K.5.a,b; L.1; L.4	20.1, 20.2, 20.3, 20.4, 20.5; 21.1, 21.2, 21.3, 21.4

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

Steps for Completion of Task 3

This task should be completed in five steps, as described below.

Step 1: Determine evaluation area criteria to be demonstrated. This step should be completed under the following guidance. All evaluation area criteria should be included automatically in each pre-operational exercise for a utility seeking an operating license from the NRC.

In the event that one or more State or local governments within the area covered by the offsite plan for that site are not participating in planning or preparedness for the site, the Licensee Offsite Response Organization evaluation area criteria should provide compensatory plans for the State/local government and demonstrate the implementation of this plan in the exercise, as provided for in the NUREG 0654/FEMA-REP-1 Rev. 1, Supp. 1.

Each exercise conducted for 350 approval at a site with an operating license should demonstrate all fundamental response and supporting activities.

Each exercise may also include one or more evaluation area criteria as necessary, to make sure that all OROs that need to demonstrate evaluation area criteria do so at least once every six years.

Step 2: Identification of the responsible OROs for each evaluation area criteria included in the exercise. This step initially entails identification of the responsible OROs for each evaluation area criteria, based upon their plans. Normally, the plans assign responsibilities for multiple emergency response functions to individual response organizations. Exercise planners should analyze all evaluation area criteria and the set of emergency functions in order to make appropriate assignments for evaluation area criteria to responsible OROs.

Demonstration frequencies for evaluation area criteria are shown in the matrix in Table 4. Table 6, Assignment of Evaluation Criteria to OROs, shows a “generic” *example* of where various evaluation criteria might be demonstrated and evaluated. The RAC Chairperson and site specialist should review all processes to determine which evaluation criteria should be assigned to a given location at a particular site. It will vary from site to site and exercise to exercise, depending upon the plans and the extent-of-play. It is important that all locations that are involved be assigned the evaluation area criterion to cover their portion of the process. For example, at site X, the State EOC prepares the press releases for the Joint News Center (JNC), but they are released at the JNC. Therefore, both the State EOC and the JNC should have Evaluation Criterion 5.b.1 which addresses whether OROs provide accurate information and instructions to the public and the news media in a timely manner.

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

TABLE 6 Assignment of Evaluation Criteria to OROs

ELEMENT / Sub-Element	STATE EOC	DOSE ASSESS	FTC	Location/Function					JPIC	
				FCP	EPZ FTEAMS	IPZ FTEAMS	RAD LAB			
1. EMERGENCY OPERATIONS MANAGEMENT										
1a. Mobilization	X	X	X	X	X					X
1b. Facilities	X	X	X	X	X					X
1c. Direction & Control	X	X	X	X	X					
1d. Communications Equipment	X	X	X	X	X					X
1e. Equipment & Supplies to support operations	X	X	X	X	X					X
2. PROTECTIVE ACTION DECISION MAKING										
2.a. Emergency Worker Exposure Control	X	X	X	X	X				X	X
2.b. Radiological Assessment & PARs & PADs	X	X	X	X	X					X
2.c. Protective Action Decisions for Special Populations	X	X	X	X	X					X
2.d. Radiological Assessment & Decision Making for Ingestion Exposure	X	X	X	X	X					
2.e. Radiological Assessment & Decision Making for Relocation, Re-entry and Return	X	X	X	X	X					
3. PROTECTIVE ACTION IMPLEMENTATION										
3.a. Implementation of Emergency Worker Control	X	X	X	X	X					X
3.b. Implementation of KI Decisions	X	X	X	X	X					X
3.c. Implementation of PADs for Special Populations	X	X	X	X	X					
3.d. Implementation of Traffic and Access Control	X	X	X	X	X					
3.e. Implementation of Ingestion Pathway Decisions	X	X	X	X	X					
3.f. Implementation of Relocation, Re-entry and Return Decisions	X	X	X	X	X					
4. FIELD MEASUREMENT and ANALYSIS										
4.a. Plume Phase Field Measurement & Analysis	X	X	X	X	X					X
4.b. Post Plume Field Measurement & Analysis	X	X	X	X	X					X
4.c. Laboratory Operations	X	X	X	X	X					X
5. EMERGENCY NOTIFICATION and PUBLIC INFORMATION										
5.a. Activation of Prompt Alert and Notification	X	X	X	X	X					
5.b. Emergency Information and Instructions for the Public and the Media	X	X	X	X	X					
6. SUPPORT OPERATIONS / FACILITIES										
6.a. Monitoring and decontamination of Evacuees and Emergency Workers and Registration of Evacuees	X	X	X	X	X					
6.b. Monitoring and Decontamination of Emergency Worker Equipment	X	X	X	X	X					
6.c. Temporary Care of Evacuees	X	X	X	X	X					
6.d. Transportation and Treatment of Contaminated Injured Individuals	X	X	X	X	X					

TASK 3: ESTABLISH EXERCISE EVALUATION AREA CRITERIA AND EXTENT-OF-PLAY

Step 3: **Develop extent-of-play agreements with responsible OROs.** For purposes of this Manual, **extent-of-play** refers to the degree that actions taken by responsible OROs in response to exercise events should conform to those actions that would be taken, under the plan, in an actual emergency.

Extent-of-play agreements should be documented for all OROs seeking to simulate demonstration of specific evaluation area criteria. These agreements should specify the simulation approved for each evaluation area criteria for all participating organizations. Extent-of-play agreements should take into account the provisions regarding field activities in partial-participation exercises, as previously described.

Step 4: **Granting of Exercise Credit**

See Exercise Credit, manual section III.G.

Step 5: **Correcting issues immediately.** During tabletop exercises, drills and other demonstrations conducted out of sequence from an integrated exercise, if FEMA and the ORO agree, the FEMA evaluator may have the participants re-demonstrate an activity that is determined to be not satisfactorily demonstrated. Immediate correction of issues in an integrated exercise is authorized only if it would not be disruptive and interrupt the flow of the exercise and affect other Evaluation Areas. The determination for which REP functions and activities could be candidates for re-demonstration should be agreed upon during the extent-of-play negotiations.

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

Description

The scenario for a simulated nuclear power plant accident is developed jointly by the State and Licensee and submitted to NRC and FEMA Regional Offices for review. The FEMA RAC Chair reviews the scenario to confirm that the source term and scenario events are adequate to drive the agreed-upon exercise evaluation area criteria and extent of play.

Milestone

State and Licensee scenario developers jointly submit the scenario to FEMA at least 60 days prior to the exercise. The RAC Chair completes review of the scenario at least 45 days before the exercise. Final scenario adjustments to ensure adequate demonstration of evaluation area criteria are made by the State and Licensee at least 15 days prior to the exercise.

References

NUREG-0654.

Products

Exercise scenario.

Guidance

The exercise scenario should include plant conditions and offsite consequences sufficient to drive activities necessary for the demonstration of the agreed-upon exercise evaluation area criteria.

The State and Licensee should develop a scenario for submission to FEMA and the NRC that includes the following information:

- A chronology of all key events;
- A narrative description of exercise events and activities;
- Meteorological data and forecasts; and
- Radiological data, e.g., characteristics of release, projected dose, exposure rates, and concentrations in the environment.

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

The radiological data should be supported by and compatible with plant conditions and the associated potential for releases or simulated releases. In the absence of a simulated release, controller inject data should be developed to drive activities that require simulated exposure rates or concentrations in the environment.

The following guidance is provided for the development of exercise scenarios for play related to evacuation, sheltering, administration of potassium iodide (KI), decontamination, control of contaminated food and water, relocation, reentry, and return. Doses and distances should be contextually determined in accordance with the following:

- Specific organizational plans,
- The geographical location of involved jurisdictions,
- The status of demonstrated evaluation area criteria within six-year periods,
- The identification of uncorrected Areas Requiring Corrective Action (ARCs), and
- Other exercise-specific considerations

Use of decision criteria. Exercises are designed to enable OROs to demonstrate the capability to make decisions on appropriate actions to protect the public and emergency workers using procedures and decision criteria established in the plans. The evaluation area criteria to be demonstrated and the corresponding extent-of-play should be agreed upon and documented in a pre-exercise agreement by the State and FEMA prior to initiating the development of a scenario (Task 3).

Demonstration of decisions to implement evacuation and sheltering necessitates special consideration. **Initial** decisions to evacuate and shelter are typically based on plant conditions and associated recommendations by the Licensee. These decisions usually prescribe evacuation to a predetermined distance (e.g., a two-mile radius and five miles in downwind sectors almost always converted to pre-planned geographic areas) and sheltering (or staying indoors waiting for additional instructions) to a greater distance. **Subsequent** decisions to evacuate and shelter are typically based on a comparison of projected dose to the PAG, where the projected dose is calculated based on a simulated release or field measurement data (including meteorological data and forecasts) provided by controller injects. For these subsequent decisions, the projected dose should exceed the evacuation and sheltering PAGs to a distance greater than the initial recommendation, but not beyond the boundary of the plume pathway EPZ.

For each evaluation area criterion to be demonstrated in an exercise, the accident scenario should be sufficient to drive exercise play for the participating jurisdictions, in accordance with the extent-of-play agreements. The distance from the nuclear power plant that a particular decision criterion (e.g., PAG) should be exceeded is contextually determined by the location of the jurisdictions designated to demonstrate the activity. For example, if controls on milk or food crops will be demonstrated, the

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

PAGs should be exceeded in areas that involve production or processing of these products. Radiological data to support controller injects should be provided as part of the scenario.

It is not necessary to exceed all PAGs in order to demonstrate implementation of an action. For example, to demonstrate a decision to evacuate, either the thyroid or TEDE PAG may be exceeded.

The following guidance applies scenario criteria to specific aspects of REP exercise play.

1. **Plume pathway exercise play:** This guidance applies when there is no demonstration of ingestion pathway exercise play, relocation, reentry, or return (so called **plume-only** exercises). There are two basic approaches to satisfying the evaluation area criteria and extent-of-play agreements for plume-only exercises. The **preferred approach** entails an integrated exercise where the accident scenario includes a combination of plant conditions and a simulated release of radioactive materials into the environment. In such an approach, the source term corresponding to the simulated release and resultant dose projections should be of sufficient magnitude and distance to drive the demonstration of exercise evaluation area criteria and extent-of-play for the participating jurisdictions in accordance with the pre-exercise agreements. While this approach postulates a simulated release into the environment, **initial** protective action decision making and implementation should be based on plant conditions alone. **Subsequent** decisions to evacuate and shelter are typically based on a comparison of projected dose to the PAG, where the projected dose is calculated based on a simulated release or field measurement data (including meteorological data and forecasts) provided by controller injects. For these subsequent decisions, the projected dose should exceed the evacuation and sheltering PAGs to a distance greater than the initial recommendation, but not beyond the boundary of the plume pathway EPZ.

For exercise play related to the use or nonuse of **KI** for emergency workers, scenarios should contain sufficient radioiodine release to force participating jurisdictions to make decisions whether or not to use KI. It is not necessary for scenarios to exceed the PAG for KI to adequately test decision making for its use or nonuse by emergency workers. For jurisdictions that have opted to include the use of KI as a supplement to evacuation and/or sheltering for the general public, scenarios must include sufficient radioiodine to exceed the PAG once in the six year cycle for each offsite jurisdiction. With respect to the distribution of KI for emergency workers, it is generally not necessary to exceed the PAG for KI since distribution of KI is effected during the early stages of an emergency to permit its use prior to exposure by the emergency workers.

Plume pathway scenario option: An alternative approach to satisfying evaluation area criteria and extent-of-play agreements for plume-only exercises is to base decisions on plant conditions with potential for release but with no simulated release of radiological materials from the plant. In such a scenario, plant conditions alone may be used to drive exercise play for all initial protective action decision making and implementation.

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

Subsequent protective action decision making and implementation would be based on a combination of plant conditions and controller injects. Controller injects would be used to drive components of field exercise play requiring contamination or exposure rates. Examples of such components are as follows:

- Dose projection,
- Decisions to decontaminate people and equipment,
- Emergency worker use and understanding of established **turn back** values, and
- Field monitoring.

Under this alternative approach, OROs affected by the plume (as determined by the exercise scenario and in accordance with extent-of-play agreements) should implement appropriate and timely protective actions in accordance with the PAG strategies set forth in the plans.

Certain conditions should be met for FEMA to approve such an approach. (1) The involved OROs cannot have a FEMA-cited Deficiency related to protective action decision making in the last exercise. (2) Scenarios should be designed to sustain potential projected doses for a sufficient period of time to drive OROs to implement protective actions. Such scenario designs would preclude OROs from waiting out the scenario in order to avoid making decisions on the implementation of protective actions. Failure of responsible OROs to take appropriate and timely protective actions may result in FEMA citing a Deficiency, even in the absence of a simulated release during the exercise. (3) The scenario should contain simulated contamination or exposure rates in the form of controller injects to drive field exercise play components requiring them. (4) If the OROs have opted to use KI for the general public, Criterion 3.b.1 cannot have been selected for demonstration.

The plume pathway exercise play option set forth above should not be used for exercises in which ingestion and/or relocation, reentry, and return pathway exercise play is carried out because of the need to have simulated deposition of radioactive materials for these activities. Additional scenario options include:

- a. States may demonstrate their post-plume phase capabilities more frequently than the required once every six years.*

Offsite response organizations may conduct post-plume phase exercise activities (i.e., ingestion, relocation, recovery and return activities) more than the required once every six years. Post-plume phase activities may be performed in connection with a plume exercise, or they may be separated. If separated, the plume phase technical data may be extended into post-plume activities. However, the bases for performing the post-plume phase activities may be derived from other technical data discrete from what was used in the previous plume exercise. Regardless of where the activity

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

is generated or derived (e.g., the previous plume exercise or a new scenario), a pre-exercise briefing is necessary to ensure that all response organizations (Federal, State, Tribal, and local) are uniformly cognizant of these data and assumptions. When the post-plume phase is an extension of the previous plume phase exercise, the briefing should include the protective action decisions made during that exercise. If a new scenario is used, the briefing should include discussion of the data, information, and controller injects necessary for the development of protective action decisions as a point of departure for the post-plume phase exercise.

Demonstration criteria for this option would be the same for any post-plume phase exercise.

- b. Mini-scenarios may be developed to support the increased participation of local responders.*

Mini-scenarios, sometimes referred to as “controller injects,” can provide increased participation by State (at times), Tribal, and local response organizations during lulls in the primary radiological response activities. For example, a HAZMAT mini-scenario incident would require an immediate response.

Mini-scenarios may be useful in enhancing exercise play for offsite emergency response organizations. However, they should be designed to not detract from the primary goals, technical analysis, and time line of the primary scenario.

- c. Exercises may begin at any of the four Emergency Classification Levels (ECLs) and/or an ECL may be skipped to reflect a fast-breaking event.*

Events triggering an offsite response may be designed to initiate exercise play at any ECL and/or provide for the skipping of an ECL(s). Skipping ECLs can make for more interesting and less predictable scenarios. To drive the offsite response, an event must reach the General Emergency classification. If the event does not result in a simulated release of radioactivity, controller injects must be provided to allow evaluation of field monitoring activities.

It is recommended that scenarios for exercises and drills be varied to enhance training and provide for a more realistic response. Scenarios for drills should be independent of the scenario used for the exercise.

- d. The plume and post-plume phases of the exercise may be separated by days or months.*

Plume and post-plume activities may be separated. Separating post-plume from plume activities would provide OROs with additional time for performing these activities more comprehensively.

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

- e. *State, Tribal, and local governments may provide a representative who is involved in exercise planning on a confidential basis and is not a member of the response team. This confidential representative or a trusted agent could provide input to enhance development of the scenario and extent of play, and, therefore, enhance exercise play.*

A confidential representative/trusted agent is a member of an ORO who may participate substantially in the exercise design but must agree not to divulge exercise confidences to potential players or others involved with the exercise. A confidential representative/trusted agent cannot be a member of the response team unless the ORO has a shortage of personnel that could play in the exercise. If a confidential representative/trusted agent is used in the exercise, he/she should not be in roles that would be compromised by the knowledge of confidential information and must agree to not use confidential exercise information until it is released. For example, a primary decision maker would not work as a confidential representative/trusted agent, but a traffic/access controller, reception center monitor, dispatcher, or dose assessment team member could be a confidential representative/trusted agent.

2. **Post-plume exercise play:** For post-plume exercise play, exercise scenarios should incorporate simulated offsite deposition exceeding the PAGs for food and/or water, as expressed in the plan. The deposition should exceed the PAGs in areas where typical food or water produced in the area would be found, but not outside the ingestion pathway EPZ. The deposition should contain both short-lived (e.g., iodine and other typical fission products) and long-lived radionuclides (e.g., cesium). The areas to be affected by the radioactive plume and consequent ground deposition should be contextually determined, based on the participating jurisdictions and specific organizational evaluation area criteria to be demonstrated.

For relocation, reentry, and return exercise play, the scenario should incorporate simulated offsite deposition that exceeds the relocation PAGs set forth in the plan in the jurisdictions specified in the extent-of-play agreement. For relocation activities, the projected dose is calculated for the first year, any subsequent year, and fifty years. The source term should contain both short-lived and long-lived radionuclides such as cesium to prevent waiting out decay to avoid relocation decisions. A cesium-134 plus cesium-137 to iodine-131 ratio in the range of 0.2 to 0.6 is recommended. However, sufficient additional relatively short-lived radionuclides should be included so that the first year relocation dose is the controlling dose.

TASK 4: DEVELOP AND REVIEW EXERCISE SCENARIO

It is recommended that ingestion, relocation, reentry, and return exercise play be integrated within the same exercise, because of the similar scenario requirements of exercise play.

FEMA Regional staff should use this guidance in reviewing and approving scenarios. FEMA and NRC Regional staff should coordinate the scenario review and notify the involved State(s) and Licensee of any necessary modifications. If scenarios do not meet these criteria, meetings should be conducted with all involved parties to identify and agree upon scenario modifications. If agreement cannot be reached, assistance should be requested from FEMA and NRC Headquarters.

TASK 5: ESTABLISH EXERCISE GROUND RULES

Description

A set of basic ground rules for the conduct of the exercise is established by the RAC Chair, NRC Regional Office, participating OROs, and the Licensee. These rules pertain to the operation and control of the exercise, safety of all exercise participants, roles (player, controller, evaluator, etc.), actual emergencies, compliance with legal requirements, exercise closeout procedures, and meeting schedules.

Milestone

The exercise ground rules are generally established 60 days before the exercise.

References

GM PR-1.

Products

Detailed exercise ground rules.

Guidance

The exercise ground rules should contain basic rules and guidelines for the following considerations.

1. Operation and control of the exercise
 - a. Identity, authority, and role of the senior exercise controller
 - (1) Initiation of exercise
 - (2) Resolution of conflicts
 - (3) Closeout of exercise
 - b. Role of exercise controllers at the various exercise locations
 - (1) Injection of exercise messages, events, and data
 - (2) Resolution of exercise-related conflicts

TASK 5: ESTABLISH EXERCISE GROUND RULES

- (3) Suspension/termination of scenario events
- c. Role of exercise evaluators
 - (1) Interview players
 - (2) Request copies of information, logs, sign-in sheets, and status boards
 - (3) Provide feedback to exercise participants during post-exercise evaluator/participant interviews
- 2. Federal, State, and local laws, regulations, ordinances, statutes, and legal requirements applicable to exercise
 - a. Authority of police and sheriff's department officials
 - b. Traffic laws
 - c. Laws, regulations, statutes, etc., that may apply or be of importance to the exercise participants
 - d. Rules for personnel and property safety
- 3. Priority of actual emergencies over exercise play
- 4. Role of volunteer agencies and players
- 5. Closeout procedures
 - a. Release of emergency workers
 - b. Completion of emergency actions as necessary
 - c. Decision-making process
- 6. Expected player and agency attendance at and participation in exercise-related meetings

TASK 6: REQUEST, ASSIGN AND CONFIRM EVALUATORS

Description

The RAC Chair determines the number of evaluators and expertise needed and makes assignments of evaluators to response organizations and exercise evaluation area criteria.

Milestone

This task is completed 45 days before the exercise.

References

44 CFR Part 350; 10 CFR Part 50; NUREG-0654.

Products

List of evaluator names, employing agencies, and their specific assignments in terms of response organizations and exercise evaluation area criteria.

Guidance

The RAC Chair should recruit evaluators for all FEMA-evaluated exercises and drills subject to the following.

- At least one evaluator should be assigned to each of the following organizations: State and county Emergency Operations Center(s) (EOC), State health agency, joint information center or equivalent, other locations where State and/or county officials have significant emergency functions, and all subcounty jurisdictions (e.g., cities, boroughs, towns, townships, and villages). However, if resources are limited and evaluators cannot be provided for all subcounty jurisdictions, then FEMA Headquarters should be notified. In such cases, the number of evaluators may be reduced, but not below the threshold of providing evaluators for at least one-third of the subcounty jurisdictions. The number of evaluators assigned to each jurisdiction should be commensurate with the number and extent-of-play of evaluation area criteria being demonstrated.
- In some cases, it may be necessary to assign an evaluator to more than one subcounty jurisdiction. However, an evaluator should not be assigned to more than two subcounty jurisdictions. In such situations, players should not be told prior to the exercise which jurisdictions will be evaluated by FEMA. The evaluators may be assigned to specific jurisdictions or they may be permitted to rotate from one jurisdiction to another, not to exceed two jurisdictions.

TASK 6: REQUEST, ASSIGN AND CONFIRM EVALUATORS

- The RAC Chair or designee should ensure that all evaluators have attended the REP exercise evaluation course offered by FEMA's Emergency Management Institute and have observed at least one REP exercise with a trained evaluator.

In cases where State and local governments choose to participate on an annual basis at a given site, FEMA may evaluate such exercises, if requested by the participating OROs, and if FEMA resources are available.

Assignments for evaluators. Assignments for offsite evaluators are made by the RAC Chair or his or her designee. Evaluators may be assigned to evaluation teams headed by a team leader. The function of the team leader is to coordinate evaluator activities, including assign evaluator locations, brief evaluators on exercise scenario and extent-of-play agreements, arrange pre-exercise visits to assigned locations, distribute evaluator assignment packets, instruct evaluators on the use of REP Exercise Evaluation Methodology Evaluation Forms and Narrative Summaries, and debrief team members prior to departure.

TASK 7: ARRANGE LOGISTICS

Description

The RAC Chair schedules meetings with exercise evaluators, NRC Regional Staff, OROs, and the public/media. These meetings should include pre-exercise evaluator training, pre-exercise briefing for Licensee/OROs, post-exercise participants' briefing, and a public meeting.

Milestone

Logistics are arranged and ORO, Federal, and Licensee players, evaluators, controllers, etc., are notified at least 30 days prior to the exercise.

References

None.

Products

Schedules and locations of events and meetings for the exercise and recommended lodging locations for participants.

Guidance

Logistical information should include a schedule of meetings for the exercise and their locations, as well as maps indicating the locations of the plant, meeting sites, and participating OROs, along with specific directions on how to get to these locations. Recommended lodging locations and directions should also be included.

TASK 8: PREPARE AND DISTRIBUTE EVALUATOR ASSIGNMENT PACKETS

Description

The RAC Chair provides a packet to each evaluator with information on his or her assignment, the exercise, schedule, and logistics.

Milestone

Packets are distributed to evaluators 14 days prior to the exercise.

References

None.

Products

Evaluator packet.

Guidance

The evaluator assignment packet includes specific evaluator assignments. The packet should also provide the following materials:

- Portions of the ORO plans applicable to each assignment;
- State and local Emergency Alert System (EAS) operational plans, when applicable;
- List of team leaders, if any;
- Schedule of activities (agenda);
- Information on ARCA from previous exercise;
- Amendments to previously provided logistical information (Task 7) or evaluator-specific information regarding lodging, meetings, and assigned locations;
- Log forms or blank paper for taking notes;
- Relevant Evaluation Forms and Narrative Summaries;
- Relevant portions of the evaluation area criteria; and
- A copy of extent-of-play agreements for assigned evaluation area criteria.

TASK 8: PREPARE AND DISTRIBUTE EVALUATOR ASSIGNMENT PACKETS

In addition to the materials listed above, the RAC Chair should consider including the following materials in the evaluator packets:

- A listing of all exercise evaluators and their assigned evaluation area criteria,
- Description of the scenario,
- Applicable guidance materials, and
- Relevant portions of the previous exercise evaluation report.

TASK 9: PROVIDE SITE-SPECIFIC TRAINING TO EVALUATORS

Description

The RAC Chair provides site-specific training to evaluators.

Milestone

Training of evaluators should be completed one (1) day before the exercise as part of the pre-exercise briefing or in a separate session.

References

None.

Products

None.

Guidance

Prior to the conduct of an exercise, evaluators should be knowledgeable of ORO plans and procedures and be experienced and trained in REP exercise evaluation procedures. For a given exercise, there may be unique considerations for which the evaluators should receive additional training. In such cases, the FEMA RAC Chair should be prepared to offer training in these areas. The training may be offered separately or as part of the pre-exercise briefing.

Factors that might prompt the need for pre-exercise evaluator training include:

- Recent and significant revisions to emergency plans and procedures;
- Differences among OROs involving authority, protective action decision making, or other aspects of emergency preparedness and response;
- Unique evaluator protocols required for specific evaluator assignments; and
- The need for specific guidance on the conduct of post-exercise evaluator and participant interviews (Task 12).

TASK 10: CONDUCT PRE-EXERCISE BRIEFING

Description

The RAC Chair conducts pre-exercise briefing for exercise evaluators, ORO control staff, and Licensee representatives to discuss the scenario and specific exercise activities.

Milestone

The pre-exercise briefing should be conducted one (1) day before the exercise.

References

None.

Products

None.

Guidance

At the pre-exercise meeting, the RAC Chair should brief participants on:

- Exercise schedule;
- Concept of operations for offsite response;
- New or unique features of offsite response plan and procedures;
- Exercise scenario;
- Extent-of-play agreements;
- Exercise ground rules;
- Evaluator assignments;
- Evaluator team structure;
- Guidelines for completion of the Evaluation Modules with Narratives;
- Evaluator protocol;
- Immediate correction of issues;
- Providing immediate preliminary feedback;

TASK 10: CONDUCT PRE-EXERCISE BRIEFING

- Expected evaluator submissions (including copies of available logs, messages, etc., from the evaluators' sites) and delivery times;
- Requirements for attendance of evaluators at post-exercise meetings; and
- Release of evaluators.

Guidance for Evaluator Protocol

Evaluator protocol consists of the following:

1. **Evaluator role:** Evaluators should be unobtrusive recorders of events. They should watch and listen to exercise play and record their observations without interfering with exercise activities.
2. **Interaction with participants:** It is often necessary for evaluators to ask participants questions during the exercise in order to gather key information about exercise play. However, evaluators must be careful not to interrupt the participants in their response activities. Evaluators should word questions so that the player is not inadvertently prompted to perform actions that might otherwise be overlooked. If agreed upon prior to the exercise (see Task 3, "Steps for Completion of Task 3," Step 5), issues may be corrected immediately. (Also see Section III.I, "Correct Issues Immediately.")
3. **Media interactions:** Evaluators should direct all media inquiries regarding the exercise evaluation process to the RAC Chair or designated FEMA Public Information Officer. Evaluators should obtain the telephone number of the RAC Chair at the pre-exercise meeting. If a meeting for the public is scheduled after the exercise, evaluators may give media representatives the time and location of the meeting. Evaluators should never provide evaluation status or express any personal opinions on the exercise or nuclear power to the media while in the role of evaluator. Evaluators should simply state politely that they are unable to provide any information on the status of the exercise evaluation.
4. **Actual emergencies:** Actual emergencies take precedence over exercise play. In such cases, evaluators should document the circumstances. In the event that an evaluator experiences a personal emergency that requires diversion from evaluation duties, he or she should contact the RAC Chair, team leader, or other FEMA authority, if possible.

TASK 10: CONDUCT PRE-EXERCISE BRIEFING

5. **Pre-exercise site visits:** It is advisable for evaluators to visit their assigned evaluation location prior to the beginning of the exercise. This is to ensure that the evaluator can find the assigned location and knows how long it will take to get there. The evaluator may wish to visit with the personnel at the evaluation location to ensure that questions they may have on plans and procedures are resolved prior to the exercise. In addition, other, non-scenario, “housekeeping” items could be covered, allowing the evaluator the opportunity to follow the flow of exercise play without interruption. This visit should not take place in the case of unannounced exercises to avoid alerting players to the upcoming exercise. RAC Chairs will instruct exercise players whether or not to make pre-exercise site visits.
6. **Evaluator dress:** Evaluators should consult with the RAC Chair or team leaders regarding appropriate dress for particular assignments.

TASK 11: DOCUMENT ORGANIZATIONAL EXERCISE PERFORMANCE

Description

A joint exercise is conducted by participating OROs and the Licensee. Under direction of the RAC Chair or designated team leaders, evaluators collect data on the demonstration of exercise evaluation area criteria. This is the first step in the evaluation of exercise performance.

Milestone

The milestone for this task is the scheduled exercise date(s).

References

NUREG-0654; 44 CFR Part 350.9; 10 CFR Part 50, Appendix E., IV., F., 1.-5; and the FEMA REP Exercise Preparation Guide (EPG).

Products

There are three products of this task:

- Information and records produced by the exercise participants such as sign-in sheets, message logs, status boards, and copies of Emergency Alert System (EAS) messages and press releases;
- Evaluator observations and data for use in Evaluation Modules and Narrative Summaries; and
- A time line of exercise events as observed by the evaluator.

Guidance

Use of the REP Exercise Preparation Guide (EPG) by evaluators. The REP EPG is structured to enable an evaluator to gather information on the plans and procedures of participating organizations for each applicable evaluation criterion demonstrated at an assigned location.

Evaluation Module. Completed Evaluation Modules and Narratives for each exercise provide a composite set of information on the overall performance of all participating organizations for all applicable evaluation area criteria. Evaluation Modules are usually completed during or immediately after the termination of exercise play. Results of the post-exercise evaluator/participant interview may be necessary to properly complete the Evaluation Modules and Narratives. In collecting data for the Evaluation Modules and Narratives, the guidelines below should be followed.

TASK 11: DOCUMENT ORGANIZATIONAL EXERCISE PERFORMANCE

A multipage Evaluation Module is provided for each criterion. Each module contains information that indicate to evaluators what to look for to evaluate that criterion. The Evaluation Criteria are based on the planning standards of NUREG-0654. Each criterion is linked to a NUREG-0654 planning standard and evaluation criterion.

The six Evaluation Areas and associated criteria contained in this document represent all capabilities needed by Offsite Response Organizations to effectively respond to radiological emergencies at commercial nuclear power plants. For each involved organization, evaluators will evaluate only those evaluation areas and criteria that pertain to the organizational capabilities to be demonstrated, as set forth in extent-of-play agreements.

For those criteria that can be answered by selecting yes, no, or N/A, evaluators should choose the appropriate response based on the following intended meanings and usages.

- For some-criteria, “yes” indicates that the evaluator views the demonstrated performance as consistent with the applicable NUREG-0654 planning standards and evaluation criteria and corollary FEMA Exercise Guidance.
- For some-criteria, “no” indicates that the evaluator views the demonstrated performance as inconsistent with the applicable NUREG-0654 planning standards and evaluation criteria and corollary FEMA Exercise Guidance.
- “N/A” stands for “not applicable” and should be used to designate that the indicated activity or function was not required to be demonstrated by an organization either because the organization was not responsible for the activity or function under its emergency plan and procedures or scenario events did not require the organization to demonstrate the activity or function. Regional Assistance Committee (RAC) Chairs, to the extent possible, should designate all “N/A” responses on Evaluation Forms for each evaluation area criterion prior to each exercise. The RAC Chair N/A designations should be based on the specific activities and functions not being required by organizations under their emergency plans and procedures or specified as not required in pre-exercise agreements.

The criteria contained in the evaluation area criteria are intended for use during exercises. However, there are a number of criteria that pertain to activities and resources that can be evaluated prior to exercises. Some examples of such activities and resources are as follows: facility resources, quantities of KI, the availability of congregate care resources, and the availability of certain types of equipment and instruments that support emergency operations. Accordingly, RAC Chairs may evaluate such activities prior to or during exercises.

In those criteria, each evaluator is asked to determine if the demonstration criteria were successfully met.

TASK 11: DOCUMENT ORGANIZATIONAL EXERCISE PERFORMANCE

Narratives. The Narrative contains the evaluator's observations about the adequacy of demonstrated performance in the context of the specific evaluation area criterion to be demonstrated.

Narratives generally require more time to develop than Evaluation Modules. Results of the post-exercise evaluator/participant interview (Task 12) and debriefing of exercise evaluators (Task 13) may be necessary to properly complete the Narratives. Guidelines for the preparation of the Narratives are found in Task 14.

TASK 12: CONDUCT POST-EXERCISE EVALUATOR/PARTICIPANT INTERVIEW

Description

Evaluators interview participants, as necessary, in order to complete their evaluation, ensuring that they have covered all the points in the extent-of-play for the criteria assigned to them. Evaluators may also solicit participant comments, questions, and suggestions. At the discretion of the RAC Chair, the evaluators may then summarize their observations of exercise play for the participants.

Milestone

The post-exercise participant interview is completed immediately following the end of exercise play. In exercises lasting more than one (1) day, interviews may be completed at the close of each day's exercise play.

References

None.

Products

Data for use in Evaluation Modules and Narratives.

Guidance

A brief post-exercise interview of exercise participants may be conducted by evaluators, as needed, to gather information for completion of the Evaluation Modules. If desired by the RAC Chair, evaluators may also provide a general summary reflecting the strengths and weaknesses of demonstrated-evaluation area criteria. During this discussion, both the evaluators and the participants may provide their overall impression on the quality of the demonstration. At this time, however, evaluators should not classify exercise issues as Deficiencies or ARCAs. An **exercise issue** is a problem in organizational performance that is linked with specific NUREG-0654 standards and applicable evaluation criteria. Applicable NUREG-0654 planning standards and evaluation criteria are cited in all evaluation area criteria to aid evaluators in establishing these linkages. There are two categories of exercise issues: Deficiencies and ARCAs. The classification of exercise issues should be made by the RAC Chair (in some cases in consultation with FEMA Headquarters) only after feedback has been received from all exercise evaluators and participants.

TASK 13: DEBRIEF EXERCISE EVALUATORS AND INITIATE CONSULTATION PROCESS

Description

Following the exercise, the RAC Chair conducts a post-exercise evaluator debriefing. Evaluators meet with team members and FEMA staff to summarize exercise observations and documentation and to identify exercise issues. A specific chronology of exercise events, or “time line,” is compiled to provide a frame of reference for evaluating exercise performance and time-sensitive activities such as alert and notification. Timing and format of the debriefing are determined by the RAC Chair. A consultation process among the RAC Chair, OROs, RAC members, and FEMA and NRC Headquarters is initiated to discuss exercise issues and determine appropriate corrective actions.

Milestone

The post-exercise evaluator debriefing should take place as soon after the conclusion of the exercise as possible (i.e., within one (1) day of the exercise). The consultation process should be initiated within two (2) days of the exercise date.

References

None.

Products

Consolidated chronology of exercise events (time line). Data for use in Evaluation Modules and Narratives.

Guidance

As soon as possible after the exercise, the RAC Chair should convene the evaluators for a debriefing on the exercise. The purposes of the debriefing are to secure accurate and complete information from evaluators, which serves as the basis for the preliminary assessment to be presented at the participants briefing, and to determine if any issues were identified that might be classified as Deficiencies.

TASK 13: DEBRIEF EXERCISE EVALUATORS AND INITIATE CONSULTATION PROCESS

If, as a result of this debriefing, the RAC Chair determines that there is a potential for classifying an exercise issue as a Deficiency, the RAC Chair must immediately notify the REP Branch, FEMA Headquarters by telephone of this possibility. This initial notification should be followed within two (2) days by a written description of the issue and the reasons why the RAC Chair believes that it may be classified as a Deficiency. FEMA Headquarters staff will, in turn, notify NRC Headquarters.

The FEMA Regional Office will promptly initiate a consultation process with OROs, members of the RAC, and FEMA Headquarters. FEMA Headquarters will apprise NRC Headquarters of any exercise issues. The purpose of the consultation process is to:

- Classify exercise issues;
- Determine appropriate remedial actions, including remedial exercises, drills, or other actions; and
- Determine which organizations should be involved in remedial actions.

TASK 14: PREPARE WRITTEN EVALUATION

Description

Following the exercise, evaluators prepare written evaluations of organizational performance and narratives of their observations for each demonstrated exercise-evaluation area criteria. These materials are submitted to the RAC Chair.

Milestone

Written evaluations are prepared as soon after the conclusion of the exercise as possible, but no later than two (2) days after the exercise. At the discretion of the RAC Chair, this task may be performed before the evaluator debriefing (Task 13).

References

44 CFR Part 350.9.

Products

Completed Evaluation Modules and Narratives.

Guidance

Based on data collected during the exercise and post-exercise evaluator/participant interview, Evaluation Modules should be completed for each assigned evaluation area criteria. Evaluation Modules should be completed according to the guidelines contained in Task 11.

Narratives for each assigned evaluation area criterion should be developed using completed Evaluation Modules for the evaluation area criteria and results of the evaluators debriefing (Task 13). The following guidelines should be followed by evaluators when preparing Narratives.

Narratives: Narrative forms are provided in the Evaluation Packet. Since this form is used for all criteria, it should be reproduced by FEMA Regional staff and attached to each Evaluation Module distributed to an evaluator.

In the Narrative, an evaluator should address the demonstration of each evaluation area criterion with respect to the applicable demonstration criteria outlined in the evaluation area criteria. The evaluator should address both the positive and/or negative aspects of the exercise demonstration.

For time-sensitive functions and activities, the evaluator should address these activities and the corresponding demonstration times in the Narrative(s) for both positive and/or negative demonstrations.

TASK 14: PREPARE WRITTEN EVALUATION

Based upon the submissions of evaluators, the RAC Chair should develop a time line that correlates protective action recommendations with established emergency classification levels (ECLs) and times. The recommended approach is to array this information in the form of a matrix for ease of interpretation.

The evaluator should include a description of observed performance of evaluation area criteria and organizations for which an ARCA was assigned in the previous biennial exercise. The evaluator should also identify and describe all exercise issues (see definition in Task 12).

For each exercise issue, the evaluator should recommend corrective actions. Examples of recommended corrective actions are training of emergency staff, repairing or replacing faulty equipment or instruments, and emergency plan and procedure modifications.

In describing exercise issues and recommending corrective actions, evaluators should not classify the issues as Deficiencies or ARCAs. Also, evaluators should not specify time frames for the correction of exercise issues. The RAC Chair will classify issues, determine whether evaluation area criteria were met, and specify time frames for the correction of exercise issues (where applicable) based on a review of the total documentation compiled for the exercise.

TASK 15: CONDUCT POST-EXERCISE PARTICIPANTS BRIEFING

Description

The RAC Chair meets with participants to present a preliminary assessment of the exercise. The participants usually present a critique of their own performance as well. This meeting provides a means of summarizing and clarifying the results of the exercise.

Milestone

This meeting is conducted as soon after the conclusion of the exercise as possible, but no later than two (2) days after the exercise.

References

44 CFR 350.9(a) and (d).

Products

None.

Guidance

As soon as possible, the RAC Chair should meet with the NRC team leader and other involved Federal personnel to coordinate and arrange for Federal participation in the joint briefing of exercise participants.

Within 48 hours of the completion of the exercise, the RAC Chair should meet with the exercise participants to discuss the preliminary results of the exercise. This briefing is conducted by the RAC Chair in accordance with 44 CFR Part 350.9(a) and (d). Other FEMA and RAC personnel may attend and participate in this briefing, as determined by the RAC Chair.

The recommended agenda for this meeting is as follows:

- Review of onsite actions (presented by NRC).
- Presentation of Licensee views.
- Review of offsite activities by RAC Chair, including the option of the RAC Chair asking evaluation team leaders or specific evaluators to make presentations regarding their observations.

TASK 15: CONDUCT POST-EXERCISE PARTICIPANTS BRIEFING

- Presentation of OROs views.
- Review of Federal response, if applicable, by RAC Chair.
- Question and answer period.
- The presentations should provide a brief integrated overview of the highlights of the exercise. They include commendations for good performance and a preliminary assessment of strengths and weaknesses of the demonstration. At this stage, no attempt should be made to classify issues as Deficiencies or ARCAs.

TASK 16: CONDUCT THE PARTICIPANTS BRIEFING THAT IS OPEN TO THE PUBLIC

Description

Following the exercise, the RAC Chair conducts a public meeting attended by representatives of FEMA, NRC, other appropriate Federal agencies, exercise participants, and interested members of the public and media.

Milestone

The meeting should be conducted within two (2) days after the exercise.

References

44 CFR Part 350.9(e).

Products

None.

Guidance

For all biennial exercises: The FEMA Regional Director shall conduct a meeting in the vicinity of the power plant to discuss the evaluation of the exercise. Notice of this meeting should be published seven days prior to the exercise date in the local newspaper with the largest circulation in the area, or other comparable media, at the discretion of the FEMA Regional Director. The meeting should include representatives of participating OROs, the NRC, and other appropriate Federal agencies. Members of the public and media may attend as observers. During the meeting, the FEMA Regional Director should provide an overview of the exercise, along with his or her observations. Comments from RAC members and other evaluators may be solicited, at the discretion of the FEMA Regional Director. When discussing problems in organizational performance, Regional officials should not classify these problems as Deficiencies or ARCAs.

The FEMA Regional Director should solicit and respond to verbal questions and comments during the meeting. At the discretion of the Regional Director, written comments from the public and media may be accepted during or after the meeting. A copy of each written submission, along with a written response, should be retained by the FEMA Regional Office. The results of the meeting and any written comments received should be taken into consideration by the FEMA Regional Director in his or her evaluation of the exercise.

At the discretion of the FEMA Regional Director, this meeting may be combined with the post-exercise participants briefing (Task 15).

TASK 16: CONDUCT THE PARTICIPANTS BRIEFING THAT IS OPEN TO THE PUBLIC

For remedial exercises: At the discretion of the FEMA Regional Director, a public meeting may be conducted following a remedial exercise. The purpose of such a meeting is to acquaint the public and media with any significant plan amendments and to discuss the results of the remedial exercise. If such a meeting is conducted, it should be conducted in the same manner as meetings held in conjunction with biennial exercises that take place after the initial 350 qualifying exercise.

TASK 17: CONDUCT THE 350 APPROVAL PROCESS

Description

Following the 350 qualifying exercise, the RAC Chair conducts a public meeting attended by representatives of FEMA, NRC, other appropriate Federal agencies, exercise participants, and interested members of the public and media.

Milestone

The meeting should be conducted within two (2) days after the exercise.

References

44 CFR Part 350.10.

Products

A transcript of the meeting is required for qualifying exercises held for initial 350 approval.

Guidance

The scope and public notice provisions of the public meeting depend on whether or not the exercise is a qualifying exercise held for formal 350 approval.

For initial FEMA 350 approval exercises: Following the qualifying exercise conducted for formal **350** approval, the FEMA Regional Director or his/her designee (usually the RAC Chair), must conduct at least one public meeting in the vicinity of the power plant. The purpose of this meeting is to:

- Acquaint the public with the content of State and local emergency response plans,
- Explain how the exercise tests the capability of State and local governments to implement their emergency response plans,
- Answer questions about FEMA's review of the plans and the exercise, and
- Receive suggestions from the public concerning changes or improvements in the plans.

TASK 17: CONDUCT THE 350 APPROVAL PROCESS

The meeting may be chaired by the FEMA Regional Director or by the State. The FEMA Regional Director should assure that representatives from appropriate OROs and the Licensee appear at such meetings to make presentations and answer questions from the public.

Notice of this meeting must be published in the local newspaper with the largest circulation in the area or other comparable media, at the discretion of the FEMA Regional Director. This notice should be published on at least two (2) occasions, one at least two weeks before the meeting and the other within a few days of the meeting. Local radio and television stations should be notified of the meeting at least one week in advance. Representatives from the NRC and other appropriate Federal agencies should be invited to participate in these meetings.

The meeting should be professionally recorded and a transcript of the meeting made available, upon request by interested parties, within three working days. The transcript should include a list of all individuals involved in the meeting, along with their organization, occupational affiliation, and place of residence. This list should include all Federal, State, local, and Licensee officials and representatives, as well as all members of the general public and media who ask questions, make comments or suggestions, or otherwise participate. A copy of the official transcript should be maintained in the FEMA Regional Office. Additional copies may be distributed to the State, the Licensee, and local communities, at the discretion of the FEMA Regional Director.

The transcript of the public meeting and documentation of any requisite follow up actions should be included in the **350** preparedness evaluation package submitted by the FEMA Regional Director to the FEMA Assistant Director for Readiness, Response and Recovery Directorate.

If a plan amendment is submitted after the public meeting has been conducted that, in the opinion of the FEMA Regional Director, significantly changes the context or nature of the planning (e.g., a change in the EPZ that results in the inclusion of additional jurisdictions), another such public meeting should be convened to discuss the amendments to the plan.

During the meeting, the FEMA Regional Director should provide an overview of the exercise, along with his or her observations. Comments from RAC members and other evaluators may be solicited, at the discretion of the FEMA Regional Director. When discussing problems in organizational performance, Regional officials should not classify these problems as Deficiencies or ARCA's.

The FEMA Regional Director should solicit and respond to verbal questions and comments during the meeting. At the discretion of the Regional Director, written comments from the public and media may be accepted during or after the meeting. A copy of each written submission, along with a written response, should be retained by the FEMA Regional Office. The results of the meeting and any written comments received should be taken into consideration by the FEMA Regional Director in his or her evaluation of the exercise.

TASK 18: NOTIFY STATE OF DEFICIENCIES

Description

Following the consultation process, and within 10 days of the exercise, the RAC Chair notifies the State of any problems in organizational performance that have been classified as Deficiencies. If no Deficiencies in organizational performance were identified, then this task does not apply.

Milestone

Within two (2) days of the exercise, the RAC Chair initiates consultation with FEMA Headquarters, RAC members, and the State in order to identify potential Deficiencies. As a result of this consultation process, and within 10 days of the exercise, the Regional Director forwards a letter to the State informing it of identified Deficiencies and the actions needed to correct the problem(s). The State acknowledges receipt of this letter and within 20 days of the exercise proposes a schedule for remedial actions. The State may also respond to both the classification of Deficiencies and the time frames for completing corrective actions.

References

44 CFR Part 350.9.

Products

Letter to State informing of Deficiencies and required corrective actions.

Guidance

The RAC Chair, following completion of the consultation process, will determine whether, in fact, there are Deficiencies in organizational performance. A **Deficiency** is defined as an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant. Because of the potential impact of Deficiencies on emergency preparedness, they should be corrected within 120 days through appropriate remedial actions, including remedial exercises, drills, or other actions.

In the event that Deficiencies are identified, the RAC Chair should prepare a letter to the State for the Regional Director's signature, which will include: (a) jurisdictions affected, (b) description of Deficiency(ies) identified, (c) remedial actions required to correct the identified Deficiency(ies), and (d) time frame for completion of required remedial actions.

The extent of participation by OROs in a remedial exercise or drill shall be determined by the FEMA Regional Director or his/her designee (usually the RAC Chair). Some factors to consider in this determination include the following:

TASK 18: NOTIFY STATE OF DEFICIENCIES

- Results of the consultation process initiated after the exercise.
- OROs demonstrate only those activities necessary for correction of the Deficiency(ies).
- To the extent possible, participation in remedial exercises should be limited to the OROs having the Deficiency(ies).
- If the corrective action performed by an ORO cannot be demonstrated without the involvement of other OROs, their participation should be at a level necessary to confirm the correction of the Deficiency(ies). If this includes participation by the Licensee, the Licensee's participation should be arranged through the host NRC Regional Administrator.

Copies of the letter should be provided to FEMA Headquarters, the appropriate NRC Regional Office, and the Licensee. FEMA Headquarters will provide a copy of the letter to NRC Headquarters.

Within 20 days of the exercise date, the State is requested to acknowledge receipt of the Deficiency letter, respond to its comments, and provide a schedule for completion of the remedial actions.

The primary reason for providing formal documentation of identified Deficiencies to States is to facilitate prompt correction of these identified problems. While it is FEMA's intent to provide this formal documentation to States within 10 days, there may be circumstances where this time frame may not be met. However, through the consultation process initiated immediately following each exercise, all involved exercise participants will be made aware of significant issues and problems that necessitate prompt correction. Subsequent formal notification of Deficiencies more than 10 days after the exercise date should not, therefore, preclude the prompt correction of Deficiencies within 120 days.

TASK 19: PREPARE EXERCISE REPORT

Description

Following the exercise, the RAC Chair prepares a draft exercise report based on materials developed and collected by the evaluators during the exercise and input from the post-exercise participants' and public meetings. The draft exercise report is submitted to the OROs and the RAC for review and comment. A final exercise report addressing these comments is prepared and provided to the State, RAC, NRC Headquarters, and Licensee.

Milestone

Within 30 days of the exercise date, the RAC Chair submits a draft exercise report to the OROs for review and comment. Within 60 days of the exercise, The OROs provide comments on the draft report to the FEMA Region. Within 90 days of the exercise, the final report is issued.

References

Post-Exercise Activities and Documentation (Section III.K of the manual).

Products

Draft and Final exercise reports.

Guidance

The exercise report represents a detailed account of the exercise and its evaluation. It includes a detailed description of the exercise findings. In addition to the **Deficiencies** and **ARCAs** identified in the draft and final exercise report, the final exercise report may also identify and describe **Areas Recommended for Improvement (ARFI)**. An ARFI is defined as an aspect of emergency preparedness that could be improved. While FEMA encourages OROs to address concerns related to identified ARFIs, they do not need to be corrected to secure or maintain FEMA 44 CFR Part 350 approval.

TASK 20: EVALUATE AND REPORT ON REMEDIAL EXERCISE OR DRILL

Description

Correction of Deficiencies identified in an exercise is demonstrated in a remedial exercise/drill or by other remedial actions, within 120 days of the exercise date. The RAC Chair prepares a separate evaluation report of the remedial exercise, drill, or other remedial actions within 30 days of the remedial action. As an alternative, if the remedial action is completed in time, it may be incorporated in the final exercise report.

Milestone

The remedial action should take place within 120 days of the exercise. The RAC Chair's evaluation of the remedial action should be completed within 30 days of the remedial action, if not incorporated into the final exercise report.

References

44 CFR Part 350.2 (l), 350.9 (a), (b), (c)(5); 10 CFR Part 50, Appendix E, F. (4).

Products

Remedial exercise evaluation, either as part of the final exercise report or in a separate remedial action evaluation report.

Guidance

Any problems in organizational performance observed in remedial exercises should be classified by the RAC Chair according to the classification scheme used for exercise issues (i.e., Deficiency and ARCA).

If evaluation of the remedial exercise or other remedial action indicates that the Deficiency(ies) have been corrected, no further action is required. If, on the other hand, the evaluation indicates that the organization did not adequately demonstrate correction of the identified Deficiency(ies), one of the following actions will be taken.

- If FEMA has not approved offsite planning and preparedness for the subject site under 44 CFR Part 350, FEMA should schedule another remedial exercise, and the NRC may consider enforcement actions.
- If FEMA has approved offsite planning and preparedness for the subject site under 44 CFR Part 350, FEMA may initiate steps to withdraw the 350 approval and schedule another remedial exercise under the provision of 350.13, and the NRC may consider enforcement actions.

TASK 21: TRACK CORRECTION OF AREAS REQUIRING CORRECTIVE ACTION (ARCAs)

Description

ARCAs observed or identified in an exercise are tracked by the RAC Chair to ensure correction in future exercises. In planning for the next exercise, evaluation area criteria and extent-of-play provisions are reviewed in light of the need to demonstrate correction of identified ARCAs.

Milestone

Corrective actions on the ARCAs not demonstrated in a remedial exercise will be verified at the next exercise, if not sooner.

References

None.

Products

Log or other documentation of outstanding ARCAs.

Guidance

The RAC Chair should document and track all ARCAs to ensure that they are corrected at the next exercise, if not sooner. In planning for the next exercise, the exercise scenario, evaluation area criteria, and extent-of-play agreements should be reviewed in light of the need to demonstrate correction of ARCAs. Deficiencies must be corrected within 120 days and are documented either in the draft exercise report or a separate remedial action evaluation report, depending on when the remedial action was conducted.

TASK 22: TRACK DEMONSTRATION OF EXERCISE EVALUATION AREA

Description

The RAC Chair establishes procedures to track each exercise evaluation area criteria to document that OROs demonstrate evaluation area criteria according to the frequencies established in the matrix (Table 4).

Milestone

Continuous.

References

NUREG-0654.

Products

Table or other record of current status of exercise evaluation area criteria, including the dates of those exercised successfully and those still needing to be exercised successfully during the current six-year period.

Guidance

As described in Task 3, evaluation area criteria are demonstrated at various frequencies. Some are demonstrated during each exercise, others are demonstrated based on the scenario, but all must be demonstrated at least once in a six-year period by all OROs responsible for the activities and functions.

In tracking evaluation area criteria, the RAC Chair should establish a list of evaluation area criteria for which OROs have responsibility. For any given organization, this will depend on the breakdown of responsibilities between State and local governments and, if applicable, utility OROs for the particular site involved. A cumulative record should be kept for OROs, identifying for each exercise which evaluation area criteria were scheduled to be demonstrated and which were demonstrated successfully.

A Radiological Emergency Preparedness Database has been developed. The database tracks the demonstration of all exercise evaluation area criteria and may be used by RAC Chairs to satisfy the provisions of this task.

B. EVALUATION AREAS

The following section of this manual contains the methodology used in the evaluation of all drills and exercises of off-site emergency response plans in support of a commercial nuclear plant by evaluators from the Federal Emergency Management Agency, other Federal Agencies, FEMA contractors, and any state, local, or Tribal evaluators. Exercises and drills are used by FEMA to determine the adequacy of offsite radiological emergency preparedness for commercial nuclear power plant accidents. The evaluation process has evolved over the years in format but the regulatory basis remains unchanged.

The regulatory basis and standards for the Radiological Emergency Preparedness (REP) program exercises/drills are addressed in 44 CFR Parts 350, 351, and 352; 10 CFR Part 50; and the Nuclear Regulatory Commission (NRC)-FEMA Memorandum of Understanding (MOU) dated June 19, 1993, and contained in 44 CFR 353, Appendix A. These documents establish FEMA's responsibility to review, evaluate, and approve State and local radiological emergency plans and preparedness and evaluate exercises of them. FEMA and the NRC use both the standards and related criteria contained in NUREG-0654 in reviewing and evaluating off-site response organizations radiological emergency plans and preparedness.

Planning Standard N of NUREG-0654 states that "Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities...and deficiencies identified as a result of exercises...are (will be) corrected." Evaluation criterion N.a.1 defines an exercise as "an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations." Planning Standard N criteria are predicated on the presumption that exercises will be conducted as set forth in NRC and FEMA rules and in exercise evaluation guidance.

A *Federal Register* notice was issued in 1996 requesting comments on the Radiological Emergency Preparedness program. Based on those comments, several recommendations were made to FEMA Headquarters. The first recommendation was to streamline the program and eliminate the current exercise checklists and inconsistencies between regions. As a result of that recommendation, the new exercise evaluation methodology was developed to minimize exercise issue inconsistencies among regions, and to make the evaluation less dependent upon prescriptive criteria and more "results oriented."

The six evaluation areas with their sub-criteria are based on the 16 planning standards of 44 CFR 350 that are further defined in NUREG-0654, Rev. 1. The evaluation areas reflect current policy and guidance on what is required for the successful demonstration during an exercise. The new evaluation areas reflect FEMA's shift towards a more "results oriented" approach to the evaluation process. In other words, the accomplishment of the mission (result) is more important than the means used to achieve the result.

REP exercises/drills are designed to test the capability of offsite response organizations (OROs) to protect public health and safety through the implementation of their emergency response plans and procedures under simulated accident conditions. NOTE: ORO refers to State, Tribal, and local governments, licensee emergency response organizations, and other supporting agencies.

Section III.B — Evaluation Areas

The Evaluation Areas were designed to allow the evaluator to focus more on observing and recording exercise/drill events as they occur.

It is essential that the approved evaluation area modules be used in all REP exercises and drills and that no modifications be made without prior approval by FEMA Headquarters.

The six Evaluation Areas are:

1. Emergency Operations Management
2. Protective Action Decision-Making
3. Protective Action Implementation
4. Plume Phase Field Measurements and Analyses
5. Emergency Notification and Public Information
6. Support Operations/Facilities

Contained within each of these Areas are specific sub-elements and evaluation criteria. It is the responsibility of the Regional Office to assign the various criteria to each facility and/or function that is to be evaluated. Table 6, “Assignment of Evaluation Criteria to OROs,” found in section III.A, Milestones and Tasks, provides examples of criteria that may apply at some locations. Tracking of when these facilities and/or functions have been evaluated, with which evaluation criteria, and the status of that demonstration is also the responsibility of each FEMA region.

1. Emergency Operations Management

Sub-element 1.a. - Mobilization
Criterion 1.a.1

Sub-element 1.b. – Facilities
Criterion 1.b.1

Sub-element 1.c. – Direction and Control
Criterion 1.c.1

Sub-element 1.d – Communications Equipment
Criterion 1.d.1

Sub-element 1.e. – Equipment and Supplies to Support Operations
Criterion 1.e.1

2. Protective Action Decision-Making

Sub-element 2.a. – Emergency Worker Exposure Control

Criterion 2.a.1.

Sub-element 2.b. – Radiological Assessment and Protective Action
Recommendations and Decisions for the Plume Phase of the
Emergency

Criterion 2.b.1

Criterion 2.b.2

Sub-element 2.c. – Protective Action Decisions Consideration for the Protection
of Special Populations

Criterion 2.c.1

Sub-element 2.d – Radiological Assessment and Decision-Making for the
Ingestion Exposure Pathway

Criterion 2.d.1

Sub-element 2.e – Radiological Assessment and Decision-Making Concerning
Relocation, Reentry, and Return

Criterion 2.e.1

3. Protective Action Implementation

Sub-element 3.a. – Implementation of Emergency Worker Exposure Control

Criterion 3.a.1

Sub-element 3.b. – Implementation of KI Decision

Criterion 3.b.1.

Sub-element 3.c. – Implementation of Protective Actions for Special Populations

Criterion 3.c.1

Criterion 3.c.2

Sub-element 3.d – Implementation of Traffic and Access Control

Criterion 3.d.1

Criterion 3.d.2

Sub-element 3.e. – Implementation of Ingestion Pathway Decisions

Criterion 3.e.1

Criterion 3.e.2

Sub-element 3.f – Implementation of Relocation, Reentry, and Return Decisions

Criterion 3.f.1

4. Plume Phase Field Measurements and Analyses

Sub-element 4.a. – Plume Phase Field Measurements and Analyses

Criterion 4.a.1

Criterion 4.a.2

Criterion 4.a.3

Sub-element 4.b – Post Plume Phase Field Measurements and Sampling

Criterion 4.b.1

Sub-element 4.c. – Laboratory Operations

Criterion 4.c.1

5. Emergency Notification and Public Information

Sub-element 5.a – Activation of the Prompt Alert and Notification System

Criterion 5.a.1.

Criterion 5.a.2. – RESERVED FOR FUTURE USE

Criterion 5.a.3

Sub-element 5.b. – Emergency Information and Instructions for the Public and the Media

Criterion 5.b.1

6. Support Operations/Facilities

Sub-element 6.a. – Monitoring and Decontamination of Evacuees and Emergency Workers, and Registration of Evacuees

Criterion 6.a.1

Sub-element 6.b. – Monitoring and Decontamination of Emergency Worker Equipment

Criterion 6.b.1

Sub-element 6.c. – Temporary Care of Evacuees

Criterion 6.c.1

Sub-element 6.d. – Transportation and Treatment of Contaminated Injured Individuals

Criterion 6.d.1

EVALUATION AREA 1

Emergency Operations Management

Sub-Element 1.a—Mobilization

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.

Criterion 1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. (NUREG-0654, A.4; D.3, 4; E.1, 2; H.4)

Extent of Play

Responsible OROs should demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner. Responsible OROs should demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. Activation of facilities should be completed in accordance with the plan and/or procedures. Pre-positioning of emergency personnel is appropriate, in accordance with the extent-of-play agreement, at those facilities located beyond a normal commuting distance from the individual's duty location or residence. Further, pre-positioning of staff for out-of-sequence demonstrations is appropriate in accordance with the extent-of-play agreement.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 1.b—Facilities

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have facilities to support the emergency response.

**Criterion 1.b.1: Facilities are sufficient to support the emergency response.
(NUREG-0654, H.3)**

Extent of Play

Facilities will only be specifically evaluated for this criterion if they are new or have substantial changes in structure or mission. Responsible OROs should demonstrate the availability of facilities that support the accomplishment of emergency operations. Some of the areas to be considered are: adequate space, furnishings, lighting, restrooms, ventilation, backup power and/or alternate facility (if required to support operations).

Facilities must be set up based on the ORO's plans and procedures and demonstrated as they would be used in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 1.c—Direction and Control

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to control their overall response to an emergency.

**Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible.
(NUREG-0654, A.1.d; A.2.a, b)**

Extent of Play

Leadership personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate OROs, and ensuring completion of requirements and requests.

All activities associated with direction and control must be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or indicated in the extent-of-play agreement.

Sub-Element 1.d—Communications Equipment

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should establish reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as the following: appropriate contiguous governments within the emergency planning zone

(EPZ), Federal emergency response organizations, the licensee and its facilities, emergency operations centers (EOC), and field teams.

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

Extent of Play

ORO's will demonstrate that a primary and at least one backup system are fully functional at the beginning of an exercise. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed. Communications equipment and procedures for facilities and field units should be used as needed for the transmission and receipt of exercise messages. All facilities and field teams should have the capability to access at least one communication system that is independent of the commercial telephone system. Responsible ORO's should demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations. ORO's should ensure that a coordinated communication link for fixed and mobile medical support facilities exists. The specific communications capabilities of ORO's should be commensurate with that specified in the response plan and/or procedures. Exercise scenarios could require the failure of a communications system and the use of an alternate system, as negotiated in the extent-of-play agreement.

All activities associated with the management of communications capabilities must be demonstrated based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or in the extent-of-play agreement.

Sub-Element 1.e—Equipment and Supplies to Support Operations

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO's) have emergency equipment and supplies adequate to support the emergency response.

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7,10; J.10.a, b, e, J.11; K.3.a)

Extent of Play

Equipment within the facility (facilities) should be sufficient and consistent with the role assigned to that facility in the ORO's plans and/or procedures in support of emergency operations. Use of maps and displays is encouraged.

Section III.B — Evaluation Areas

All instruments, should be inspected, inventoried, and operationally checked before each use. Instruments should be calibrated in accordance with the manufacturer's recommendations. Unmodified CDV-700 series instruments and other instruments without a manufacturer's recommendation should be calibrated annually. Modified CDV-700 instruments should be calibrated in accordance with the recommendation of the modification manufacturer. A label indicating such calibration should be on each instrument or calibrated frequency can be verified by other means. Additionally, instruments being used to measure activity should have a range of readings sticker affixed to the side of the instrument. The above considerations should be included in 4.a.1 for field team equipment; 4.c.1 for radiological laboratory equipment (does not apply to analytical equipment); reception center and emergency worker facilities' equipment under 6.a.1; and ambulance and medical facilities' equipment under 6.d.1.

Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility. Appropriate direct-reading dosimetry should allow individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans and procedures.

Dosimetry should be inspected for electrical leakage at least annually and replaced, if necessary. CDV-138s, due to their documented history of electrical leakage problems, should be inspected for electrical leakage at least quarterly and replaced if necessary. This leakage testing will be verified during the exercise, through documentation submitted in the Annual Letter of Certification, and/or through a staff assistance visit.

Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers, as indicated on rosters; institutionalized individuals, as indicated in capacity lists for facilities; and, where stipulated by the plan and/or procedures, members of the general public (including transients) within the plume pathway EPZ.

Quantities of dosimetry and KI available and storage location(s) will be confirmed by physical inspection at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or State laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.

At locations where traffic and access control personnel are deployed, appropriate equipment (e.g., vehicles, barriers, traffic cones and signs, etc.) should be available or their availability described.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

EVALUATION AREA 2

Protective Action Decision Making

Sub-Element 2.a—Emergency Worker Exposure Control

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to assess and control the radiation exposure received by emergency workers and have a decision chain in place, as specified in the ORO's plans and procedures, to authorize emergency worker exposure limits to be exceeded for specific missions.

Radiation exposure limits for emergency workers are the recommended accumulated dose limits or exposure rates that emergency workers may be permitted to incur during an emergency. These limits include any pre-established administrative reporting limits (that take into consideration Total Effective Dose Equivalent or organ-specific limits) identified in the ORO's plans and procedures.

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4, J.10. e, f)

Extent of Play

OROs authorized to send emergency workers into the plume exposure pathway EPZ should demonstrate a capability to meet the criterion based on their emergency plans and procedures.

Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of preauthorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels.

As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established Protective Action Guides (PAGs) for KI administration.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 2.b.—Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to use all available data to independently project integrated dose from exposure rates or other information and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation. OROs base these choices on PAGs from the ORO's plans and procedures or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (e.g., other affected OROs), availability of appropriate in-place shelter, weather conditions, and situations that create higher than normal risk from evacuation.

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions. (NUREG-0654, I.8, 10 and Supplement 3)

Extent of Play

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO should demonstrate the capability to use appropriate means, described in the plan and/or procedures, to develop protective action recommendations (PAR) for decision-makers based on available information and recommendations from the licensee and field monitoring data, if available.

When release and meteorological data are provided by the licensee, the ORO also considers these data. The ORO should demonstrate a reliable capability to independently validate dose projections. The types of calculations to be demonstrated depend on the data available and the need for assessments to support the PARs appropriate to the scenario. In all cases, calculation of projected dose should be demonstrated. Projected doses should be related to quantities and units of the PAG to which they will be compared. PARs should be promptly transmitted to decision-makers in a prearranged format.

Differences greater than a factor of 10 between projected doses by the licensee and the ORO should be discussed with the licensee with respect to the input data and assumptions used, the use of different models, or other possible reasons. Resolution of these differences should be incorporated into the PAR if timely and appropriate. The ORO should demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PAD) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9, 10.f, m)

Extent of Play

Offsite Response Organizations (OROs) should have the capability to make both initial and subsequent PADs. They should demonstrate the capability to make initial PADs in a timely manner appropriate to the situation, based on notification from the licensee, assessment of plant status and releases, and PARs from the utility and ORO staff.

The dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. The decision makers should demonstrate the capability to change protective actions as appropriate based on these projections.

If the ORO has determined that KI will be used as a protective measure for the general public under offsite plans, then the ORO should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for the general public to supplement sheltering and evacuation. This decision should be based on the ORO's plan and/or procedures or projected thyroid dose compared with the established PAG for KI administration. The KI decisionmaking process should involve close coordination with appropriate assessment and decision-making staff.

If more than one ORO is involved in decision-making, OROs should communicate and coordinate PADs with affected OROs. OROs should demonstrate the capability to communicate the contents of decisions to the affected jurisdictions.

All decision-making activities by ORO personnel must be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 2.c—Protective Action Decisions Consideration for the Protection of Special Populations

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to determine protective action recommendations, including evacuation, sheltering and use of potassium iodide (KI), if applicable, for special population groups (e.g., hospitals, nursing homes, correctional

facilities, schools, licensed day care centers, mobility impaired individuals, and transportation dependent individuals). Focus is on those special population groups that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups. (NUREG-0654, J.9, J.10.d, e)

Extent of Play

Usually, it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for situations where there is a high-risk environment or where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, examples of factors that should be considered are: weather conditions, shelter availability, availability of transportation assets, risk of evacuation vs. risk from the avoided dose, and precautionary school evacuations. In situations where an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs.

Applicable OROs should demonstrate the capability to alert and notify all public school systems/districts of emergency conditions that are expected to or may necessitate protective actions for students. Contacts with public school systems/districts must be actual.

In accordance with plans and/or procedures, OROs and/or officials of public school systems/districts should demonstrate the capability to make prompt decisions on protective actions for students. Officials should demonstrate that the decision making process for protective actions considers (that is, either accepts automatically or gives heavy weight to) protective action recommendations made by ORO personnel, the ECL at which these recommendations are received, preplanned strategies for protective actions for that ECL, and the location of students at the time (for example, whether the students are still at home, en route to the school, or at the school).

All decision-making activities associated with protective actions, including consideration of available resources, for special population groups must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 2.d.—Radiological Assessment and Decision-Making for the Ingestion Exposure Pathway

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway.

During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria. (NUREG-0654, J.9, J.11)

Extent of Play

It is expected that the Offsite Response Organizations (OROs) will take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans and procedures. Often such precautionary actions are initiated by the OROs based on criteria related to the facility's Emergency Classification Levels (ECL). Such actions may include recommendations to place milk animals on stored feed and to use protected water supplies.

The ORO should use its procedures (for example, development of a sampling plan) to assess the radiological consequences of a release on the food and water supplies. The ORO's assessment should include the evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas, the characterization of the releases from the facility, and the extent of areas potentially impacted by the release. During this assessment, OROs should consider the use of agricultural and watershed data within the 50-mile EPZ. The radiological impacts on the food and water should then be compared to the appropriate ingestion PAGs contained in the ORO's plan and/or procedures. (The plan and/or procedures may contain PAGs based on specific dose commitment criteria or based on criteria as recommended by current Food and Drug Administration guidance.) Timely and appropriate recommendations should be provided to the ORO decision-makers group for implementation decisions. As time permits, the ORO may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.

The ORO should demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information available. Any such decisions should be communicated and, to the extent practical, coordinated with neighboring and local OROs.

OROs should use Federal resources, as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating.

Section III.B — Evaluation Areas

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 2.e.—Radiological Assessment and Decision-Making Concerning Relocation, Reentry, and Return

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to make decisions on relocation, Reentry, and return of the general public. These decisions are essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a nuclear power plant.

Criterion 2.e.1: Timely relocation, reentry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654, I.10; J.9; M.1)

Extent of Play

Relocation: OROs should demonstrate the capability to estimate integrated dose in contaminated areas and to compare these estimates with PAGs, apply decision criteria for relocation of those individuals in the general public who have not been evacuated but where projected doses are in excess of relocation PAGs, and control access to evacuated and restricted areas. Decisions are made for relocating members of the evacuated public who lived in areas that now have residual radiation levels in excess of the PAGs. Determination of areas to be restricted should be based on factors such as the mix of radionuclides in deposited materials, calculated exposure rates vs. the PAGs, and field samples of vegetation and soil analyses.

Reentry: Decisions should be made regarding the location of control points and policies regarding access and exposure control for emergency workers and members of the general public who need to temporarily enter the evacuated area to perform specific tasks or missions.

Examples of control procedures are: the assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; questions regarding the individual's objectives and locations expected to be visited and associated time frames; availability of maps and plots of radiation exposure rates; advice on areas to avoid; and procedures for exit including: monitoring of individuals, vehicles, and equipment; decision criteria regarding decontamination; and proper disposition of emergency worker dosimetry and maintenance of emergency worker radiation exposure records.

Responsible OROs should demonstrate the capability to develop a strategy for authorized Reentry of individuals into the restricted zone, based on established decision criteria.

OROs should demonstrate the capability to modify those policies for security purposes (e.g., police patrols), for maintenance of essential services (e.g., fire protection and utilities), and for other critical functions. They should demonstrate the capability to use decision making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for farm animals or secure machinery for storage), or to retrieve important possessions. Coordinated policies for access and exposure control should be developed among all agencies with roles to perform in the restricted zone. OROs should demonstrate the capability to establish policies for provision of dosimetry to all individuals allowed to re-enter the restricted zone. The extent that OROs need to develop policies on Reentry will be determined by scenario events.

Return: Decisions are to be based on environmental data and political boundaries or physical/geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area that is based on the relocation PAG.

Other factors that the ORO should consider are, for example: conditions that permit the cancellation of the Emergency Classification Level and the relaxation of associated restrictive measures; basing return recommendations (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis) on measurements of radiation from ground deposition; and the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are: medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

EVALUATION AREA 3

Protective Action Implementation

Sub-Element 3.a—Implementation of Emergency Worker Exposure Control

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimetry and permanent record dosimetry; the reading of direct-reading dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; and establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of protective action guides, always applying the ALARA (As Low As is Reasonably Achievable) principle as appropriate.

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a, b)

Extent of Play

ORO's should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimeter chargers, and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the ORO's plans and procedures.

Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated.

During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turnback values are reached. The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. OROs should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency

workers may use any available resources (e.g., written procedures and/or coworkers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission and adequate control of exposure can be effected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, e.g., at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimetry. Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 3.b—Implementation of KI Decision

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to provide radioprotective drugs for emergency workers, institutionalized individuals, and, if in the plan and/or procedures, to the general public for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for OROs to have the capability to provide KI to emergency workers and institutionalized individuals, the provision of KI to the general public is an ORO option and is reflected in ORO's plans and procedures. Provisions should include the availability of adequate quantities, storage, and means of the distribution of radioprotective drugs.

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record-keeping of the administration of KI for emergency workers and institutionalized individuals is maintained. (NUREG-0654, J.10.e)

Extent of Play

Offsite Response Organizations (OROs) should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the ORO plan and/or procedures, to members of the general public. OROs should demonstrate the capability to accomplish distribution of KI consistent with decisions

made. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary. OROs should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures.

Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished by an interview with the evaluator.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-element 3.c—Implementation of Protective Actions for Special Populations

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special populations that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions. (NUREG-0654, J.10.c, d, g)

Extent of Play

Applicable OROs should demonstrate the capability to alert and notify (for example, provide protective action recommendations and emergency information and instructions) special populations (hospitals, nursing homes, correctional facilities, mobility impaired individuals, transportation dependent, etc.). OROs should demonstrate the capability to provide for the needs of special populations in accordance with the ORO's plans and procedures.

Contact with special populations and reception facilities may be actual or simulated, as agreed to in the Extent of Play. Some contacts with transportation providers should be actual, as negotiated in the extent of play. All actual and simulated contacts should be logged.

All implementing activities associated with protective actions for special populations must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

**Criterion 3.c.2: OROs/School officials implement protective actions for schools.
(NUREG-0654, J.10.c, d, g)**

Extent of Play

Public school systems/districts shall demonstrate the ability to implement protective action decisions for students. The demonstration shall be made as follows: At least one school in each affected school system or district, as appropriate, needs to demonstrate the implementation of protective actions. The implementation of canceling the school day, dismissing early, or sheltering should be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually be demonstrated or accomplished through an interview process. If accomplished through an interview process, appropriate school personnel including decision making officials (e.g., superintendent/principal, transportation director/bus dispatcher), and at least one bus driver (and the bus driver's escort, if applicable) should be available to demonstrate knowledge of their role(s) in the evacuation of school children. Communications capabilities between school officials and the buses, if required by the plan and/or procedures, should be verified.

Officials of the school system(s) should demonstrate the capability to develop and provide timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools.

The provisions of this criterion also apply to any private schools, private kindergartens and day care centers that participate in REP exercises pursuant to the ORO's plans and procedures as negotiated in the extent-of-play agreement.

All activities must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 3.d.—Implementation of Traffic and Access Control

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g, j)

Extent of Play

OROs should demonstrate the capability to select, establish, and staff appropriate traffic and access control points, consistent with protective action decisions (for example, evacuating, sheltering, and relocation), in a timely manner. OROs should demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.

Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This capability may be demonstrated by actual deployment or by interview, in accordance with the extent-of-play agreement.

In instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Criterion 3.d.2: Impediments to evacuation are identified and resolved. (NUREG-0654, J.10.k)

Extent of Play

OROs should demonstrate the capability, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation. Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated; however, all contacts, actual or simulated, should be logged.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 3.e—Implementation of Ingestion Pathway Decisions

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway zone (IPZ), the area

within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. NUREG-0654, J.9, 11)

Extent of Play

Applicable OROs should demonstrate the capability to secure and utilize current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the ingestion pathway EPZ. OROs should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654, J.9, 11)

Extent of Play

Development of measures and strategies for implementation of IPZ protective actions should be demonstrated by formulation of protective action information for the general public and food producers and processors. This includes either pre-distributed public information material in the IPZ or the capability for the rapid reproduction and distribution of appropriate reproduction-ready information and instructions to pre-determined individuals and businesses. OROs should demonstrate the capability to control, restrict or prevent distribution of contaminated food by commercial sectors. Exercise play should include demonstration of communications and coordination between organizations to implement protective actions. Actual field play of implementation activities may be simulated. For example, communications and coordination with agencies responsible for enforcing food controls within the IPZ should be demonstrated, but actual communications with food producers and processors may be simulated.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 3.f—Implementation of Relocation, Reentry, and Return Decisions

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should demonstrate the capability to implement plans, procedures, and decisions for relocation, Reentry, and return. Implementation of these decisions is essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

Criterion 3.f.1: Decisions regarding controlled Reentry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

Extent of Play

Relocation: OROs should demonstrate the capability to coordinate and implement decisions concerning relocation of individuals, not previously evacuated, to an area where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. OROs should also demonstrate the capability to provide for short-term or long-term relocation of evacuees who lived in areas that have residual radiation levels above the (first-, second-, and fifty-year) PAGs.

Areas of consideration should include the capability to communicate with OROs regarding timing of actions, notification of the population of the procedures for relocation, and the notification of, and advice for, evacuated individuals who will be converted to relocation status in situations where they will not be able to return to their homes due to high levels of contamination. OROs should also demonstrate the capability to communicate instructions to the public regarding relocation decisions.

Reentry: OROs should demonstrate the capability to control Reentry and exit of individuals who need to temporarily re-enter the restricted area, to protect them from unnecessary radiation exposure and for exit of vehicles and other equipment to control the spread of contamination outside the restricted area. Monitoring and decontamination facilities will be established as appropriate.

Examples of control procedure subjects are: (1) The assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; (2) questions regarding the individuals' objectives and locations expected to be visited and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; and procedures for exit, including monitoring of individuals, vehicles, and equipment, decision criteria regarding contamination, proper disposition of emergency worker dosimetry, and maintenance of emergency worker radiation exposure records.

Return: OROs should demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. OROs should demonstrate the capability to identify and prioritize services and facilities that require restoration within a few days, and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

Communications among OROs for relocation, Reentry, and return may be simulated; however all simulated or actual contacts should be documented. These discussions may be accomplished in a group setting.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

EVALUATION AREA 4

Field Measurement and Analysis

Sub-Element 4.a—Plume Phase Field Measurements and Analyses

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to detect airborne radioiodine in the presence of noble gases and to detect radioactive particulate material in the airborne plume. In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10; I.7, 8, 9)

Extent of Play

Field teams should be equipped with all instrumentation and supplies necessary to accomplish their mission. This should include instruments capable of measuring gamma exposure rates and detecting the presence of beta radiation. These instruments should be capable of measuring a range of activity and exposure, including radiological protection/exposure control of team members and detection of activity on the air sample collection media, consistent with the intended use of the instrument and the ORO's plans and procedures. An appropriate radioactive check source should be used to verify proper operational response for each low range radiation measurement instrument (less than 1 R/hr) and for high range instruments when available. If a source is not available for a high range instrument, a procedure should exist to operationally test the instrument before entering an area where only a high range instrument can make useful readings.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, H.12; I.8, 11; J.10.a)

Extent of Play

Responsible Offsite Response Organizations (OROs) should demonstrate the capability to brief teams on predicted plume location and direction, travel speed, and exposure control procedures before deployment.

Field measurements are needed to help characterize the release and to support the adequacy of implemented protective actions or to be a factor in modifying protective actions. Teams should be directed to take measurements in such locations, at such times to provide information sufficient to characterize the plume and impacts.

If the responsibility to obtain peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by State and local monitoring teams. If the licensee teams do not obtain peak measurements in the plume, it is the ORO's decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field teams (licensee, Federal, and ORO) is essential. Coordination concerning transfer of samples, including a chain-of-custody form, to a radiological laboratory should be demonstrated.

OROs should use Federal resources as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (for example, compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I. 9)

Extent of Play

Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates and ambient radiation to the field team coordinator, dose assessment, or other appropriate authority. If samples have radioactivity significantly above background, the appropriate authority should consider the need for expedited laboratory analyses of these samples.

Section III.B — Evaluation Areas

OROs should share data in a timely manner with all appropriate OROs. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO's plan and/or procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 4.b—Post Plume Phase Field Measurements and Sampling

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the IPZ and for relocation, Reentry and return measures. This sub-element focuses on the collection of environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8; J.11)

Extent of Play

The ORO's field team should demonstrate the capability to take measurements and samples, at such times and locations as directed, to enable an adequate assessment of the ingestion pathway and to support reentry, relocation, and return decisions. When resources are available, the use of aerial surveys and in-situ gamma measurement is appropriate. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO's plan and/or procedures.

Ingestion pathway samples should be secured from agricultural products and water. Samples in support of relocation and return should be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, nuclear insurers, etc.), if available. Evaluation of this criterion

Section III.B — Evaluation Areas

will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 4.c—Laboratory Operations

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision-making.

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654, C.3; J.11)

Extent of Play

The laboratory staff should demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory, preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (for example, milk), and keeping track of sample identity. In addition, the laboratory staff should demonstrate the capability to prepare samples for conducting measurements.

The laboratory should be appropriately equipped to provide analyses of media, as requested, on a timely basis, of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO's plans and procedures. The laboratory (laboratories) instrument calibrations should be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans and procedures. New or revised methods may be used to analyze atypical radionuclide releases (for example, transuranics or as a result of a terrorist event) or if warranted by circumstances of the event. Analysis may require resources beyond those of the ORO.

The laboratory staff should be qualified in radioanalytical techniques and contamination control procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

Section III.B — Evaluation Areas

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

EVALUATION AREA 5

Emergency Notification and Public Information

Sub-Element 5.a—Activation of the Prompt Alert and Notification System

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D), and FEMA-REP-10, “Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants.”

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E.IV.D and NUREG-0654, E.5, 6, 7)

Extent of Play

Responsible Offsite Response Organizations (OROs) should demonstrate the capability to sequentially provide an alert signal followed by an initial instructional message to populated areas (permanent resident and transient) throughout the 10-mile plume pathway EPZ. Following the decision to activate the alert and notification system, in accordance with the ORO’s plan and/or procedures, completion of system activation should be accomplished in a timely manner (will not be subject to specific time requirements) for primary alerting/notification. The initial message should include the elements required by current FEMA REP guidance.

Offsite Response Organizations (OROs) with route alerting as the primary method of alerting and notifying the public should demonstrate the capability to accomplish the primary route alerting, following the decision to activate the alert and notification system, in a timely manner (will not be subject to specific time requirements) in accordance with the ORO’s plan and/or procedures. At least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location. The initial message should include the elements required by current FEMA REP guidance.

For exercise purposes, timely is defined as “the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.” If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages *is not* required. The alert signal activation may be simulated. However, the procedures should be demonstrated up to the point of actual activation.

The capability of the primary notification system to broadcast an instructional message on a 24-hour basis should be verified during an interview with appropriate personnel from the primary notification system.

All activities for this criterion must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent-of-play agreement.

Criterion 5.a.2: [Reserved]

Criterion 5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, E. 6, Appendix 3.B.2.c)

Extent of Play

Offsite Response Organizations (OROs) with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report) 5–10 miles from the nuclear power plant should demonstrate the capability to accomplish primary alerting and notification of the exception area(s) within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The 45-minute clock will begin when the OROs make the decision to activate the alert and notification system for the first time for a specific emergency situation. The initial message should, at a minimum, include: a statement that an emergency exists at the plant and where to obtain additional information.

For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-

play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

Backup alert and notification of the public should be completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. Backup route alerting only needs to be demonstrated and evaluated, in accordance with the ORO's plan and/or procedures and the extent-of-play agreement, if the exercise scenario calls for failure of any portion of the primary system(s), or if any portion of the primary system(s) actually fails to function. If demonstrated, only one route needs to be selected and demonstrated. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 5.b—Emergency Information and Instructions for the Public and the Media

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to disseminate to the public appropriate emergency information and instructions, including any recommended protective actions. In addition, NUREG-0654 provides that OROs should ensure that the capability exists for providing information to the media. This includes the availability of a physical location for use by the media during an emergency. NUREG-0654 also provides that a system should be available for dealing with rumors. This system will hereafter be known as the public inquiry hotline.

Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654, E. 5, 7; G.3.a, G.4.c)

Extent of Play

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner (will not be subject to specific time requirements). For exercise purposes, timely is defined as "the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

The ORO should ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information should contain all necessary and applicable instructions (for example, evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, information concerning pets, shelter-in-place instructions, information concerning protective actions for schools and special populations, public inquiry telephone number, etc.) to assist the public in carrying out protective action decisions provided to them. The ORO should also be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident. At a minimum, this information must be included in media briefings and/or media releases. OROs should demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

The emergency information should be all-inclusive by including previously identified protective action areas that are still valid, as well as new areas. The OROs should demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the OROs should demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plan and/or procedures. OROs should demonstrate the capability to develop emergency information in a non-English language when required by the plan and/or procedures.

If ingestion pathway measures are exercised, OROs should demonstrate that a system exists for rapid dissemination of ingestion pathway information to pre-determined individuals and businesses in accordance with the ORO's plan and/or procedures.

ORO's should demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The OROs should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (for example, Emergency Alert System [EAS] messages and media releases) and media information kits should be available for dissemination to the media.

ORO's should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

Section III.B — Evaluation Areas

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

EVALUATION AREA 6

Support Operation/Facilities

Sub-Element 6.a—Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to implement radiological monitoring and decontamination of evacuees and emergency workers, while minimizing contamination of the facility, and registration of evacuees at reception centers.

Criterion 6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h; J.12; K.5.a)

Extent of Play

Radiological monitoring, decontamination, and registration facilities for evacuees/emergency workers should be set up and demonstrated as they would be in an actual emergency or as indicated in the extent-of-play agreement. This would include adequate space for evacuees' vehicles. Expected demonstration should include 1/3 of the monitoring teams/portal monitors required to monitor 20% of the population allocated to the facility within 12 hours. Before using monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation.

Staff responsible for the radiological monitoring of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population planning base within about 12 hours. This monitoring productivity rate per hour is the number of evacuees that can be monitored per hour by the total complement of monitors using an appropriate monitoring procedure. A minimum of six individuals per monitoring station should be monitored, using equipment and procedures specified in the plan and/or procedures, to allow demonstration of monitoring, decontamination, and registration capabilities. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met. Monitoring of emergency workers does not have to meet the twelve-hour requirement. However, appropriate monitoring procedures should be demonstrated for a minimum of two emergency workers.

Decontamination of evacuees/emergency workers may be simulated and conducted by interview. The availability of provisions for separately showering should be demonstrated or explained. The staff should demonstrate provisions for limiting the spread of

contamination. Provisions could include floor coverings, signs and appropriate means (for example, partitions, roped-off areas) to separate clean from potentially contaminated areas. Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

Monitoring personnel should explain the use of action levels for determining the need for decontamination. They should also explain the procedures for referring evacuees who cannot be adequately decontaminated for assessment and follow up in accordance with the ORO's plans and procedures. Contamination of the individual will be determined by controller inject and not simulated with any low-level radiation source.

The capability to register individuals upon completion of the monitoring and decontamination activities should be demonstrated. The registration activities demonstrated should include the establishment of a registration record for each individual, consisting of the individual's name, address, results of monitoring, and time of decontamination, if any, or as otherwise designated in the plan. Audio recorders, camcorders, or written records are all acceptable means for registration.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise indicated in the extent-of-play agreement.

Sub-Element 6.b—Monitoring and Decontamination of Emergency Worker Equipment

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to implement radiological monitoring and decontamination of emergency worker equipment, including vehicles.

Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment, including vehicles. (NUREG-0654, K.5.b)

Extent of Play

The monitoring staff should demonstrate the capability to monitor equipment, including vehicles, for contamination in accordance with the Offsite Response Organization's (ORO's) plans and procedures. Specific attention should be given to equipment, including vehicles, that was in contact with individuals found to be contaminated. The monitoring staff should demonstrate the capability to make decisions on the need for

Section III.B — Evaluation Areas

decontamination of equipment, including vehicles, based on guidance levels and procedures stated in the plan and/or procedures.

The area to be used for monitoring and decontamination should be set up as it would be in an actual emergency, with all route markings, instrumentation, record keeping and contamination control measures in place. Monitoring procedures should be demonstrated for a minimum of one vehicle. It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as radiator grills, bumpers, wheel wells, tires, and door handles should be demonstrated. Interior surfaces of vehicles that were in contact with individuals found to be contaminated should also be checked.

Decontamination capabilities, and provisions for vehicles and equipment that cannot be decontaminated, may be simulated and conducted by interview.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 6.c—Temporary Care of Evacuees

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) demonstrate the capability to establish relocation centers in host areas. The American Red Cross (ARC) normally provides congregate care in support of OROs under existing letters of agreement.

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. (Found in MASS CARE—Preparedness Operations, ARC 3031). Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h, J.12)

Extent of Play

Under this criterion, demonstration of congregate care centers may be conducted out of sequence with the exercise scenario. The evaluator should conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with ARC 3031. In this simulation, it is not necessary to set up operations as they would be in an actual emergency. Alternatively, capabilities may be demonstrated by setting up stations for various services and providing those services to simulated evacuees. Given the substantial differences between demonstration and simulation of this objective, exercise demonstration expectations should be clearly specified in extent-of-play agreements.

Section III.B — Evaluation Areas

Congregate care staff should also demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability may be determined through an interview process.

If operations at the center are demonstrated, material that would be difficult or expensive to transport (e.g., cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility (facilities). However, availability of such items should be verified by providing the evaluator a list of sources with locations and estimates of quantities.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Sub-Element 6.d—Transportation and Treatment of Contaminated Injured Individuals

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2; H.10; K.5.a, b; L.1, 4)

Extent of Play

Monitoring, decontamination, and contamination control efforts will not delay urgent medical care for the victim.

Offsite Response Organizations (OROs) should demonstrate the capability to transport contaminated injured individuals to medical facilities. An ambulance should be used for the response to the victim. However, to avoid taking an ambulance out of service for an extended time, any vehicle (e.g., car, truck, or van) may be utilized to transport the victim to the medical facility. Normal communications between the ambulance/dispatcher and the receiving medical facility should be demonstrated. If a substitute vehicle is used for transport to the medical facility, this communication must occur before releasing the ambulance from the drill. This communication would include reporting radiation monitoring results, if available. Additionally, the ambulance crew should demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.

Section III.B — Evaluation Areas

Monitoring of the victim may be performed before transport, done enroute, or deferred to the medical facility. Before using a monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities should be completed as they would be in an actual emergency. Appropriate contamination control measures should be demonstrated before and during transport and at the receiving medical facility.

The medical facility should demonstrate the capability to activate and set up a radiological emergency area for treatment. Equipment and supplies should be available for the treatment of contaminated injured individuals.

The medical facility should demonstrate the capability to make decisions on the need for decontamination of the individual, to follow appropriate decontamination procedures, and to maintain records of all survey measurements and samples taken. All procedures for the collection and analysis of samples and the decontamination of the individual should be demonstrated or described to the evaluator.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Frequency for Evaluation of New Criteria

The REP-14 objectives were evaluated at the frequency described on Pages C-2.3 and C-2.4 of REP-14. Adoption of the new Exercise Evaluation Areas renders these pages obsolete. Table 4, "Federal Evaluation Process Matrix," in section III.A, Milestones and Tasks, establishes the minimum frequency with which each of the Exercise Evaluation Area criteria would be exercised. FEMA is open to ORO proposals to voluntarily exercise certain criteria more frequently than the minimums shown in Table 4.

C. EVALUATION AREA MODULES

1. Format of Evaluation Area Module

The Module has three main pages; the sub-element and criterion, the narrative, and the issues section.

The first section of the module is the header that the evaluator must complete. Following the header is the name of the Evaluation Area and the specific sub-element and criterion for that particular module. The criterion lists all the NUREG planning elements that pertain to the particular sub-element. If an exercise issue is identified it is the responsibility of the evaluator to assign the specific NUREG element(s) to the issue.

There is only one question on the modules: Was the Criterion adequately demonstrated? The evaluator has to decide one of three choices: yes, no, or not applicable. If the answer is NO, then all exercise issues should be addressed on the Issues page: one Issue page per issue.

YES means that the criterion was adequately demonstrated. If the demonstration included a deviation from the plan, then an issue page should be written with a recommendation to change the plan. The narrative should have a description of what occurred.

NO means that the criterion was not adequately demonstrated and that the action or inaction did/could have an effect. If there is no effect, there is no exercise issue (i.e., Deficiency or Area Requiring Corrective Action).

N/A means “not applicable” and is used to designate that the activity or functions was either (1) not required to be demonstrated or (2) the scenario did not drive the actions to provide the opportunity to demonstrate this activity. (In the event a module is assigned and the facility does not have that responsibility, the RAC Chair should be notified so that it may be deleted from that facility in the Region’s tracking system.)

The intent further describes the criterion. Each sub-element has an Extent-of-Play establishing what is to be observed to adequately demonstrate this criterion. There can also be a Regional Extent-of-Play in addition to the basic one. A Regional Extent-of-Play is an agreement between the FEMA Regional office and applicable OROs regarding modifications to the basic extent-of-play. Optimally, both would be included in the evaluator packet on this form.

The second page is the Issue for Criterion page. The evaluator for each issue must complete this. It will be the decision of the RAC Chairperson whether the issue would be considered a Deficiency, ARCA, plan issue, or not an issue. There are five elements that must be addressed in writing an issue: Condition, Possible Cause, Reference, Effect, and Recommendation.

The third page is the narrative. Here the evaluator presents the observations regarding this particular component of the exercise process. The narrative should include “who, what, when, why, where, and how.” Any previous outstanding Area Requiring Corrective Action (ARCA) that is corrected during the exercise must be identified and discussed how it was adequately

demonstrated and whether the evaluator considers it closed. If an ARCA was not adequately demonstrated the evaluator must also describe why it was not adequately demonstrated. Should there be any new issues identified, the evaluator must describe these in the narrative.

2. How To Use the Evaluation Module

The Module should be reviewed prior to arriving at the evaluation site. During the exercise/drill the evaluator should observe and take notes. Assuming the evaluator is familiar with the REP Exercise Preparation Guide, there is no need to take the evaluation module to the location. The evaluator is thus freed up to observe, take notes, and ask questions. Afterwards, the module should be reviewed again while preparing the narrative of what was observed and the conclusion of whether the criterion was adequately demonstrated or not.

3. How To Write a Narrative

As the “eyes and ears of the RAC Chairperson,” the evaluator must write a complete narrative of the activities observed during the exercise. However, it is imperative that the narrative be explicitly geared to the particular criterion and sub-area, e.g., Mobilization should not include a discussion of direction and control or EAS messages.

As a guide, the evaluator should prepare the narrative by considering “who, what, when, why, where, and how” to describe activities. Any outstanding ARCAs should be addressed and the discussion should include how the ARCA was corrected and closed or why it should remain open. New exercise issues require a discussion of what occurred. The narrative should support the evaluator’s “yes” or “no.”

4. How To Write an Issue

In addition to being included in the narrative, all new and continued exercise issues must have an Issues page completed. Completion of this page will also assist the evaluator in organizing events and thoughts that led to the issue being identified. The issue has five components to it that the evaluator must complete.

1. Condition: describe the inadequacy
2. Possible Cause: what created the issue - responsibility
3. Reference: cite the NUREG-0654 element (see module criterion and select the appropriate one, cite regulation, and plan, if appropriate)
4. Effect – a discussion of what resulted or could have resulted due to this issue
5. Recommendation: suggestions on how to correct the issue

REMEMBER: evaluators do not classify issues. Only the RAC Chairperson has that authority.

5. Example of How Modules May Be Assigned

Evaluation modules are rarely “stand alone” at any evaluated facility or function. Rather there will be a combination of modules for the evaluator to complete. Regions have pre-identified what evaluation modules are required at each facility/function that is to be evaluated. An example of what may be assigned is as follows:

<u>School – out of sequence</u>	<u>Ambulance</u>	<u>Local or County EOC</u>
1.e.1;	1.e.1;	1.a.1; 2.a.1; 3.c.2; 5.a.3;
3.a.1;	3.a.1;	1.b.1; 2.c.1; 3.d.1; 5.b.1
3.b.1;	3.b.1;	1.c.1; 3.a.1; 3.d.2;
3.c.2.	6.d.1	1.d.1; 3.b.1; 3. f.1;
		1.e.1; 3.c.1; 5.a.1;

6. References

1. 44 CFR Part 350
2. 44 CFR Part 351
3. 44 CFR Part 352
4. 10 CFR Part 50
5. NUREG-0654/FEMA REP-1, Revision 1
6. NUREG-0654/FEMA REP-1, Revision 1, Supplement 3
7. NRC/FEMA Memorandum of Understanding
8. Federal Register, April 25, 2002

7. Evaluation Area Modules

The Evaluation Area Modules are provided in the remainder of this section.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 1 Emergency Operations Management

Sub-element 1.a. — Mobilization

Criterion 1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner.
 (NUREG-0654, A.4; D.3, 4.; E.1, 2; H.4)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, time line of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.

Extent-of-play

Responsible OROs should demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner. Responsible OROs should demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. Activation of facilities should be completed in accordance with the plan and/or procedures. Pre-positioning of emergency personnel is appropriate, in accordance with the extent-of-play agreement, at those facilities located beyond a normal commuting distance from the individual's duty location or residence. Further, pre-positioning of staff for

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

out-of-sequence demonstrations is appropriate in accordance with the extent-of-play agreement.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 1 Emergency Operations Management

Sub-element 1.b — Facilities

**Criterion 1.b.1: Facilities are sufficient to support the emergency response.
(NUREG-0654, H.3)**

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, time line of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have facilities to support the emergency response.

Extent-of-play

Facilities will only be specifically evaluated for this criterion if they are new or have substantial changes in structure or mission. Responsible OROs should demonstrate the availability of facilities that support the accomplishment of emergency operations. Some of the areas to be considered are: adequate space, furnishings, lighting, restrooms, ventilation, backup power and/or alternate facility (if required to support operations).

Facilities must be set up based on the ORO’s plans and procedures and demonstrated as they would be used in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 1 Emergency Operations Management

Sub-element 1.c — Direction and Control

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible. (NUREG-0654, A.1.d; A.2.a, b)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to control their overall response to an emergency.

Extent-of-play

Leadership personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate OROs, and ensuring completion of requirements and requests.

All activities associated with direction and control must be performed based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 1 Emergency Operations Management

Sub-element 1.d — Communications Equipment

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should establish reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as the following: appropriate contiguous governments within the emergency planning zone (EPZ), Federal emergency response organizations, the licensee and its facilities, emergency operations centers (EOC), and field teams.

Extent-of-play

OROs will demonstrate that a primary and at least one backup system are fully functional at the beginning of an exercise. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed. Communications equipment and procedures for facilities and field units should be used as needed for the transmission and receipt of exercise messages. All facilities and field teams should have the

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

capability to access at least one communication system that is independent of the commercial telephone system. Responsible OROs should demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations. OROs should ensure that a coordinated communication link for fixed and mobile medical support facilities exists. The specific communications capabilities of OROs should be commensurate with that specified in the response plan and/or procedures. Exercise scenarios could require the failure of a communications system and the use of an alternate system, as negotiated in the extent-of-play agreement.

All activities associated with the management of communications capabilities must be demonstrated based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 1 Emergency Operations Management

Sub-element 1.e — Equipment and Supplies to Support Operations

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7, 10; J.10.a, b, e; J.11; K.3.a)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have emergency equipment and supplies adequate to support the emergency response.

Extent-of-play

Equipment within the facility (facilities) should be sufficient and consistent with the role assigned to that facility in the ORO’s plans and/or procedures in support of emergency operations. Use of maps and displays is encouraged.

All instruments, should be inspected, inventoried, and operationally checked before each use. Instruments should be calibrated in accordance with the manufacturer’s recommendations. Unmodified CDV-700 series instruments and other instruments without a manufacturer’s recommendations should be calibrated annually. Modified CDV-700 instruments should be calibrated in accordance with the recommendation of the modification manufacturer. A label

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

indicating such calibration should be on each instrument or calibrated frequency can be verified by other means. Additionally, instruments being used to measure activity should have a range of readings sticker affixed to the side of the instrument. The above considerations should be included in 4.a.1 for field team equipment; 4.c.1 for radiological laboratory equipment (does not apply to analytical equipment); reception center and emergency worker facilities' equipment under 6.a.1; and ambulance and medical facilities' equipment under 6.d.1.

Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility. Appropriate direct-reading dosimetry should allow individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans and procedures.

Dosimetry should be inspected for electrical leakage at least annually and replaced, if necessary. CDV-138s, due to their documented history of electrical leakage problems, should be inspected for electrical leakage at least quarterly and replaced if necessary. This leakage testing will be verified during the exercise, through documentation submitted in the Annual Letter of Certification, and/or through a staff assistance visit.

Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers, as indicated on rosters; institutionalized individuals, as indicated in capacity lists for facilities; and, where stipulated by the plan and/or procedures, members of the general public (including transients) within the plume pathway EPZ.

Quantities of dosimetry and KI available and storage locations(s) will be confirmed by physical inspection at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or State laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.

At locations where traffic and access control personnel are deployed, appropriate equipment (e.g., vehicles, barriers, traffic cones and signs, etc.) should be available or their availability described.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 2 Protective Action Decision Making

Sub-element 2.a — Emergency Worker Exposure Control

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers, including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4, J.10. e, f)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to assess and control the radiation exposure received by emergency workers and have a decision chain in place, as specified in the ORO’s plans and procedures, to authorize emergency worker exposure limits to be exceeded for specific missions.

Radiation exposure limits for emergency workers are the recommended accumulated dose limits or exposure rates that emergency workers may be permitted to incur during an emergency. These limits include any pre-established administrative reporting limits (that take into consideration Total Effective Dose Equivalent or organ-specific limits) identified in the ORO’s plans and procedures.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

OROs authorized to send emergency workers into the plume exposure pathway EPZ should demonstrate a capability to meet the criterion based on their emergency plans and procedures.

Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of preauthorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels.

As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established Protective Action Guides (PAGs) for KI administration.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 2 Protective Action Decision Making

Sub-element 2.b. — Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and Licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions. (NUREG-0654, I.8, 10 and Supplement 3)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to use all available data to independently project integrated dose from exposure rates or other information and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation. OROs base these choices on PAGs from the ORO’s plans and procedures or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (e.g., other affected OROs), availability of appropriate in-place shelter, weather conditions, and situations that create higher than normal risk from evacuation.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO should demonstrate the capability to use appropriate means, described in the plan and/or procedures, to develop protective action recommendations (PAR) for decision-makers based on available information and recommendations from the licensee and field monitoring data, if available.

When release and meteorological data are provided by the licensee, the ORO also considers these data. The ORO should demonstrate a reliable capability to independently validate dose projections. The types of calculations to be demonstrated depend on the data available and the need for assessments to support the PARs appropriate to the scenario. In all cases, calculation of projected dose should be demonstrated. Projected doses should be related to quantities and units of the PAG to which they will be compared. PARs should be promptly transmitted to decision-makers in a prearranged format.

Differences greater than a factor of 10 between projected doses by the licensee and the ORO should be discussed with the licensee with respect to the input data and assumptions used, the use of different models, or other possible reasons. Resolution of these differences should be incorporated into the PAR if timely and appropriate. The ORO should demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 2 Protective Action Decision Making

Sub-element 2.b. — Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PAD) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9, 10.m, f)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to use all available data to independently project integrated dose from exposure rates or other information and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation. OROs base these choices on PAGs from the OROs’ plans and procedures or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (e.g., other affected OROs), availability of appropriate in-place shelter, weather conditions, and situations that create higher than normal risk from evacuation.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

Offsite Response Organizations (OROs) should have the capability to make both initial and subsequent PADs. They should demonstrate the capability to make initial PADs in a timely manner appropriate to the situation, based on notification from the licensee, assessment of plant status and releases, and PARs from the utility and ORO staff.

The dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. The decision-makers should demonstrate the capability to change protective actions as appropriate based on these projections.

If the ORO has determined that KI will be used as a protective measure for the general public under offsite plans, then the ORO should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for the general public to supplement sheltering and evacuation. This decision should be based on the ORO’s plan and/or procedures or projected thyroid dose compared with the established PAG for KI administration. The KI decision-making process should involve close coordination with appropriate assessment and decision-making staff.

If more than one ORO is involved in decision-making, OROs should communicate and coordinate PADs with affected OROs. OROs should demonstrate the capability to communicate the contents of decisions to the affected jurisdictions.

All decision-making activities by ORO personnel must be performed based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 2 Protective Action Decision Making

Sub-element 2.c —Protective Action Decisions Consideration for the Protection of Special Populations

Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups. (NUREG-0654, J.9, J.10.d, e)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to determine protective action recommendations, including evacuation, sheltering and use of potassium iodide (KI), if applicable, for special population groups (e.g., hospitals, nursing homes, correctional facilities, schools, licensed day care centers, mobility impaired individuals, and transportation dependent individuals). Focus is on those special population groups that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Extent-of-play

Usually, it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for situations where there is a high-risk environment or where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, examples of factors that should be considered are: weather conditions, shelter availability, availability of transportation assets, risk of evacuation vs. risk from the avoided

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

dose, and precautionary school evacuations. In situations where an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs.

Applicable OROs should demonstrate the capability to alert and notify all public school systems/districts of emergency conditions that are expected to or may necessitate protective actions for students. Contacts with public school systems/districts must be actual.

In accordance with plans and/or procedures, OROs and/or officials of public school systems/districts should demonstrate the capability to make prompt decisions on protective actions for students. Officials should demonstrate that the decision making process for protective actions considers (that is, either accepts automatically or gives heavy weight to) protective action recommendations made by ORO personnel, the ECL at which these recommendations are received, preplanned strategies for protective actions for that ECL, and the location of students at the time (for example, whether the students are still at home, en route to the school, or at the school).

All decision-making activities associated with protective actions, including consideration of available resources, for special population groups must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 2 Protective Action Decision Making

Sub-element 2.d. — Radiological Assessment and Decision Making for the Ingestion Exposure Pathway

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO’s planning criteria. (NUREG-0654, J. 9,11)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway.

During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

It is expected that the Offsite Response Organizations (OROs) will take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans and procedures. Often such precautionary actions are initiated by the OROs based on criteria related to the facility’s Emergency Classification Levels (ECL). Such actions may include recommendations to place milk animals on stored feed and to use protected water supplies.

The ORO should use its procedures (for example, development of a sampling plan) to assess the radiological consequences of a release on the food and water supplies. The ORO’s assessment should include the evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas, the characterization of the releases from the facility, and the extent of areas potentially impacted by the release. During this assessment, OROs should consider the use of agricultural and watershed data within the 50-mile EPZ. The radiological impacts on the food and water should then be compared to the appropriate ingestion PAGs contained in the ORO’s plan and/or procedures. (The plan and/or procedures may contain PAGs based on specific dose commitment criteria or based on criteria as recommended by current Food and Drug Administration guidance.) Timely and appropriate recommendations should be provided to the ORO decision-makers group for implementation decisions. As time permits, the ORO may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.

The ORO should demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information available. Any such decisions should be communicated and, to the extent practical, coordinated with neighboring and local OROs.

OROs should use Federal resources, as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating.

All activities must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 2 Protective Action Decision Making

Sub-element 2.e. — Radiological Assessment and Decision Making Concerning Relocation, Reentry, and Return

Criterion 2.e.1: Timely relocation, reentry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO’s plan and/or procedures. (NUREG-0654, I.10; J.9; M.1)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to make decisions on relocation, Reentry, and return of the general public. These decisions are essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a nuclear power plant.

Extent-of-play

Relocation: OROs should demonstrate the capability to estimate integrated dose in contaminated areas and to compare these estimates with PAGs, apply decision criteria for relocation of those individuals in the general public who have not been evacuated but where projected doses are in excess of relocation PAGs, and control access to evacuated and restricted areas. Decisions are made for relocating members of the evacuated public who lived in areas that now have residual radiation levels in excess of the PAGs. Determination of areas to be restricted should be based on factors such as the mix of radionuclides in deposited

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

materials, calculated exposure rates vs. the PAGs, and field samples of vegetation and soil analyses.

Reentry: Decisions should be made regarding the location of control points and policies regarding access and exposure control for emergency workers and members of the general public who need to temporarily enter the evacuated area to perform specific tasks or missions.

Examples of control procedures are: the assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; questions regarding the individual's objectives and locations expected to be visited and associated time frames; availability of maps and plots of radiation exposure rates; advice on areas to avoid; and procedures for exit including: monitoring of individuals, vehicles, and equipment; decision criteria regarding decontamination; and proper disposition of emergency worker dosimetry and maintenance of emergency worker radiation exposure records.

Responsible OROs should demonstrate the capability to develop a strategy for authorized Reentry of individuals into the restricted zone, based on established decision criteria. OROs should demonstrate the capability to modify those policies for security purposes (e.g., police patrols), for maintenance of essential services (e.g., fire protection and utilities), and for other critical functions. They should demonstrate the capability to use decision making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for farm animals or secure machinery for storage), or to retrieve important possessions. Coordinated policies for access and exposure control should be developed among all agencies with roles to perform in the restricted zone. OROs should demonstrate the capability to establish policies for provision of dosimetry to all individuals allowed to re-enter the restricted zone. The extent that OROs need to develop policies on Reentry will be determined by scenario events.

Return: Decisions are to be based on environmental data and political boundaries or physical/geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area that is based on the relocation PAG.

Other factors that the ORO should consider are, for example: conditions that permit the cancellation of the Emergency Classification Level and the relaxation of associated restrictive measures; basing return recommendations (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis) on measurements of radiation from ground deposition; and the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are: medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.a — Implementation of Emergency Worker Exposure Control

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a.b)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimetry and permanent record dosimetry; the reading of direct-reading dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; and establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of protective action guides, always applying the ALARA (As Low As is Reasonably Achievable) principle as appropriate.

Extent-of-play

ORO should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimeter chargers, and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the ORO's plans and procedures.

Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated.

During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turnback values are reached. The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. OROs should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency workers may use any available resources (e.g., written procedures and/or coworkers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission and adequate control of exposure can be effected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, e.g., at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimetry. Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.b — Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record-keeping of the administration of KI for emergency workers and institutionalized individuals is maintained. (NUREG-0654, J. 10. e)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to provide radioprotective drugs for emergency workers, institutionalized individuals, and, if in the plan and/or procedures, to the general public for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for OROs to have the capability to provide KI to emergency workers and institutionalized individuals, the provision of KI to the general public is an ORO option and is reflected in ORO’s plans and procedures. Provisions should include the availability of adequate quantities, storage, and means of the distribution of radioprotective drugs.

Extent-of-play

Offsite Response Organizations (OROs) should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the ORO plan and/or procedures, to members of the general public. OROs should demonstrate the capability to

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

accomplish distribution of KI consistent with decisions made. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary. OROs should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures.

Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished by an interview with the evaluator.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.c — Implementation of Protective Actions for Special Populations

Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions. (NUREG-0654, J.10.c, d, g)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special populations that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Extent-of-play

Applicable OROs should demonstrate the capability to alert and notify (for example, provide protective action recommendations and emergency information and instructions) special populations (hospitals, nursing homes, correctional facilities, mobility impaired individuals, transportation dependent, etc.). OROs should demonstrate the capability to provide for the needs of special populations in accordance with the ORO’s plans and procedures.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Contact with special populations and reception facilities may be actual or simulated, as agreed to in the Extent-of-play. Some contacts with transportation providers should be actual, as negotiated in the extent-of-play. All actual and simulated contacts should be logged.

All implementing activities associated with protective actions for special populations must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.c — Implementation of Protective Actions for Special Populations

**Criterion 3.c.2: OROs/School Officials Implement Protective Actions For Schools.
(NUREG-0654, J.10.C, D, G)**

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special populations that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Extent-of-play

Public school systems/districts shall demonstrate the ability to implement protective action decisions for students. The demonstration shall be made as follows: At least one school in each affected school system or district, as appropriate, needs to demonstrate the implementation of protective actions. The implementation of canceling the school day, dismissing early, or sheltering should be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually be demonstrated or accomplished through an interview

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

process. If accomplished through an interview process, appropriate school personnel including decision-making officials (e.g., superintendent/principal, transportation director/bus dispatcher), and at least one bus driver (and the bus driver’s escort, if applicable) should be available to demonstrate knowledge of their role(s) in the evacuation of school children. Communications capabilities between school officials and the buses, if required by the plan and/or procedures, should be verified.

Officials of the school system(s) should demonstrate the capability to develop and provide timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools.

The provisions of this criterion also apply to any private schools, private kindergartens and day care centers that participate in REP exercises pursuant to the ORO’s plans and procedures as negotiated in the extent-of-play agreement.

All activities must be based on the ORO’s plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.d. — Implementation of Traffic and Access Control

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g, j)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

Extent-of-play

OROs should demonstrate the capability to select, establish, and staff appropriate traffic and access control points, consistent with protective action decisions (for example, evacuating, sheltering, and relocation), in a timely manner. OROs should demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This capability may be demonstrated by actual deployment or by interview, in accordance with the extent-of-play agreement.

In instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.d. — Implementation of Traffic and Access Control

**Criterion 3.d.2: Impediments to evacuation are identified and resolved.
(NUREG-0654, J.10.k)**

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This subelement focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

Extent-of-play

OROs should demonstrate the capability, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation. Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated; however, all contacts, actual or simulated, should be logged.

All activities must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.e — Implementation of Ingestion Pathway Decisions

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. (NUREG-0654, J.9, 11)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway zone (IPZ), the area within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

Extent-of-play

Applicable OROs should demonstrate the capability to secure and utilize current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the ingestion pathway EPZ. OROs should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.e — Implementation of Ingestion Pathway Decisions

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654, J.9, 11)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway zone (IPZ), the area within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

Extent-of-play

Development of measures and strategies for implementation of IPZ protective actions should be demonstrated by formulation of protective action information for the general public and food producers and processors. This includes either pre-distributed public information material in the IPZ or the capability for the rapid reproduction and distribution of appropriate reproduction-ready information and instructions to pre-determined individuals and businesses. OROs should demonstrate the capability to control, restrict or prevent distribution of contaminated food by commercial sectors. Exercise play should include demonstration of communications and

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

coordination between organizations to implement protective actions. Actual field play of implementation activities may be simulated. For example, communications and coordination with agencies responsible for enforcing food controls within the IPZ should be demonstrated, but actual communications with food producers and processors may be simulated.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 3 Protective Action Implementation

Sub-element 3.f — Implementation of Relocation, Reentry, and Return Decisions

Criterion 3.f.1: Decisions regarding controlled reentry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should demonstrate the capability to implement plans, procedures, and decisions for relocation, Reentry, and return. Implementation of these decisions is essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

Extent-of-play

Relocation: OROs should demonstrate the capability to coordinate and implement decisions concerning relocation of individuals, not previously evacuated, to an area where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. OROs should also demonstrate the capability to provide for short-term or long-term relocation of evacuees who lived in areas that have residual radiation levels above the (first-, second-, and fifty-year) PAGs.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Areas of consideration should include the capability to communicate with OROs regarding timing of actions, notification of the population of the procedures for relocation, and the notification of, and advice for, evacuated individuals who will be converted to relocation status in situations where they will not be able to return to their homes due to high levels of contamination. OROs should also demonstrate the capability to communicate instructions to the public regarding relocation decisions.

Reentry: OROs should demonstrate the capability to control Reentry and exit of individuals who need to temporarily re-enter the restricted area, to protect them from unnecessary radiation exposure and for exit of vehicles and other equipment to control the spread of contamination outside the restricted area. Monitoring and decontamination facilities will be established as appropriate.

Examples of control procedure subjects are: (1) The assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; (2) questions regarding the individuals' objectives and locations expected to be visited and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; and procedures for exit, including monitoring of individuals, vehicles, and equipment, decision criteria regarding contamination, proper disposition of emergency worker dosimetry, and maintenance of emergency worker radiation exposure records.

Return: OROs should demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. OROs should demonstrate the capability to identify and prioritize services and facilities that require restoration within a few days, and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

Communications among OROs for relocation, Reentry, and return may be simulated; however all simulated or actual contacts should be documented. These discussions may be accomplished in a group setting.

ORO's should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 4 Field Measurement and Analysis

Sub-element 4.a — Plume Phase Field Measurements and Analyses

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10; I.7, 8, 9)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to measure airborne radioiodine in the presence of noble gases and to detect radioactive particulate material in the airborne plume. In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

Field teams should be equipped with all instrumentation and supplies necessary to accomplish their mission. This should include instruments capable of measuring gamma exposure rates and detecting the presence of beta radiation. These instruments should be capable of measuring a range of activity and exposure, including radiological protection/exposure control of team members and detection of activity on the air sample collection media, consistent with the intended use of the instrument and the ORO’s plans and procedures. An appropriate radioactive check source should be used to verify proper operational response for each low range radiation measurement instrument (less than 1 R/hr) and for high range instruments when available. If a source is not available for a high range instrument, a procedure should exist to operationally test the instrument before entering an area where only a high range instrument can make useful readings.

All activities must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 4 Field Measurement and Analysis

Sub-element 4.a — Plume Phase Field Measurements and Analyses

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, H.12.; I.8., 11.; J.10.a.)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to detect airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume. In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

Responsible Offsite Response Organizations (OROs) should demonstrate the capability to brief teams on predicted plume location and direction, travel speed, and exposure control procedures before deployment.

Field measurements are needed to help characterize the release and to support the adequacy of implemented protective actions or to be a factor in modifying protective actions. Teams should be directed to take measurements in such locations, at such times to provide information sufficient to characterize the plume and impacts.

If the responsibility to obtain peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by State and local monitoring teams. If the licensee teams do not obtain peak measurements in the plume, it is the ORO’s decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field teams (licensee, Federal, and ORO) is essential. Coordination concerning transfer of samples, including a chain-of-custody form, to a radiological laboratory should be demonstrated.

OROs should use Federal resources as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (for example, compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 4 Field Measurement and Analysis

Sub-element 4.a — Plume Phase Field Measurements and Analyses

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I.9)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to detect airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume. In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Extent-of-play

Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates and ambient radiation to the field team coordinator, dose assessment, or other appropriate authority. If samples have radioactivity significantly above background, the appropriate authority should consider the need for expedited laboratory analyses of these samples.

OROs should share data in a timely manner with all appropriate OROs. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO’s plan and/or procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 4 Field Measurement and Analysis

Sub-element 4.b — Post Plume Phase Field Measurements and Sampling

Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8; J.11)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the IPZ and for relocation, Reentry and return measures. This sub-element focuses on the collection of environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

Extent-of-play

The ORO’s field team should demonstrate the capability to take measurements and samples, at such times and locations as directed, to enable an adequate assessment of the ingestion pathway and to support reentry, relocation, and return decisions. When resources are available, the use of aerial surveys and in-situ gamma measurement is appropriate. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO’s plan and/or procedures.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Ingestion pathway samples should be secured from agricultural products and water. Samples in support of relocation and return should be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 4 Field Measurement and Analysis

Sub-element 4.c — Laboratory Operations

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654, C.3; J.11)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision-making.

Extent-of-play

The laboratory staff should demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory, preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (for example, milk), and keeping track of sample identity. In addition, the laboratory staff should demonstrate the capability to prepare samples for conducting measurements.

The laboratory should be appropriately equipped to provide analyses of media, as requested, on a timely basis, of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO’s plans and procedures. The laboratory (laboratories) instrument

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

calibrations should be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans and procedures. New or revised methods may be used to analyze atypical radionuclide releases (for example, transuranics or as a result of a terrorist event) or if warranted by circumstances of the event. Analysis may require resources beyond those of the ORO.

The laboratory staff should be qualified in radioanalytical techniques and contamination control procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 5 Emergency Notification and Public Information

Sub-element 5.a — Activation of the Prompt Alert and Notification System

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E.IV.D and NUREG-0654, E. 5, 6, 7)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D), and FEMA-REP-10, “Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants.”

Extent-of-play

Responsible Offsite Response Organizations (ORO) should demonstrate the capability to sequentially provide an alert signal followed by an initial instructional message to populated areas (permanent resident and transient) throughout the 10-mile plume pathway EPZ. Following the decision to activate the alert and notification system, in accordance with the ORO’s plan and/or procedures, completion of system activation should be accomplished in a timely manner

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

(will not be subject to specific time requirements) for primary alerting/notification. The initial message should include the elements required by current FEMA REP guidance.

Offsite Response Organizations (OROs) with route alerting as the primary method of alerting and notifying the public should demonstrate the capability to accomplish the primary route alerting, following the decision to activate the alert and notification system, in a timely manner (will not be subject to specific time requirements) in accordance with the ORO’s plan and/or procedures. At least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location. The initial message should include the elements required by current FEMA REP guidance.

For exercise purposes, timely is defined as “the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.” If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages *is not* required. The alert signal activation may be simulated. However, the procedures should be demonstrated up to the point of actual activation. The capability of the primary notification system to broadcast an instructional message on a 24-hour basis should be verified during an interview with appropriate personnel from the primary notification system.

All activities for this criterion must be based on the ORO’s plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 5 Emergency Notification and Public Information

Sub-element 5.a — Activation of the Prompt Alert and Notification System

Criterion 5.a.2: [RESERVED]

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

[RESERVED]

Extent-of-play

[RESERVED]

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 5 Emergency Notification and Public Information

Sub-element 5.a — Activation of the Prompt Alert and Notification System

Criterion 5.a.3: Activities associated with FEMA-approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, E. 6, Appendix 3.B.2.c)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT AND EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D), and FEMA-REP-10, “Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants.”

Extent-of-play

Offsite Response Organizations (ORO) with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report) 5–10 miles from the nuclear power plant should demonstrate the capability to accomplish primary alerting and notification of the exception area(s) within 45 minutes following the initial decision by authorized offsite

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

emergency officials to notify the public of an emergency situation. The 45-minute clock will begin when the OROs make the decision to activate the alert and notification system for the first time for a specific emergency situation. The initial message should, at a minimum, include: a statement that an emergency exists at the plant and where to obtain additional information.

For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

Backup alert and notification of the public should be completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. Backup route alerting only needs to be demonstrated and evaluated, in accordance with the ORO's plan and/or procedures and the extent-of-play agreement, if the exercise scenario calls for failure of any portion of the primary system(s), or if any portion of the primary system(s) actually fails to function. If demonstrated, only one route needs to be selected and demonstrated. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 5 Emergency Notification and Public Information

Sub-element 5.b — Emergency Information and Instructions for the Public and the Media

Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654, E. 5, 7; G.3.a, G.4.c)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to disseminate to the public appropriate emergency information and instructions, including any recommended protective actions. In addition, NUREG-0654 provides that OROs should ensure that the capability exists for providing information to the media. This includes the availability of a physical location for use by the media during an emergency. NUREG-0654 also provides that a system should be available for dealing with rumors. This system will hereafter be known as the public inquiry hotline.

Extent-of-play

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner (will not be subject to specific time requirements). For exercise purposes, timely is defined as “the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.” If message dissemination is to be identified as not having been

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

The ORO should ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information should contain all necessary and applicable instructions (for example, evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, information concerning pets, shelter-in-place instructions, information concerning protective actions for schools and special populations, public inquiry telephone number, etc.) to assist the public in carrying out protective action decisions provided to them. The ORO should also be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident. At a minimum, this information must be included in media briefings and/or media releases. OROs should demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

The emergency information should be all-inclusive by including previously identified protective action areas that are still valid, as well as new areas. The OROs should demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the OROs should demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plan and/or procedures. OROs should demonstrate the capability to develop emergency information in a non-English language when required by the plan and/or procedures.

If ingestion pathway measures are exercised, OROs should demonstrate that a system exists for rapid dissemination of ingestion pathway information to pre-determined individuals and businesses in accordance with the ORO's plan and/or procedures.

ORO should demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The OROs should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (for example, EAS messages and media releases) and media information kits should be available for dissemination to the media.

ORO should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 6 Support Operation/Facilities

Sub-element 6.a — Monitoring and Decontamination of Evacuees and Emergency Workers, and Registration of Evacuees

Criterion 6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h; J.12; K.5.a)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to implement radiological monitoring and decontamination of evacuees and emergency workers, while minimizing contamination of the facility, and registration of evacuees at reception centers.

Extent-of-play

Radiological monitoring, decontamination, and registration facilities for evacuees/emergency workers should be set up and demonstrated as they would be in an actual emergency or as indicated in the extent-of-play agreement. This would include adequate space for evacuees' vehicles. Expected demonstration should include 1/3 of the monitoring teams/portal monitors required to monitor 20% of the population allocated to the facility within 12 hours. Before using monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Staff responsible for the radiological monitoring of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population planning base within about 12 hours. This monitoring productivity rate per hour is the number of evacuees that can be monitored per hour by the total complement of monitors using an appropriate monitoring procedure. A minimum of six individuals per monitoring station should be monitored, using equipment and procedures specified in the plan and/or procedures, to allow demonstration of monitoring, decontamination, and registration capabilities. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met. Monitoring of emergency workers does not have to meet the twelve-hour requirement. However, appropriate monitoring procedures should be demonstrated for a minimum of two emergency workers.

Decontamination of evacuees/emergency workers may be simulated and conducted by interview. The availability of provisions for separately showering should be demonstrated or explained. The staff should demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs and appropriate means (for example, partitions, roped-off areas) to separate clean from potentially contaminated areas. Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

Monitoring personnel should explain the use of action levels for determining the need for decontamination. They should also explain the procedures for referring evacuees who cannot be adequately decontaminated for assessment and follow up in accordance with the ORO's plans and procedures. Contamination of the individual will be determined by controller inject and not simulated with any low-level radiation source.

The capability to register individuals upon completion of the monitoring and decontamination activities should be demonstrated. The registration activities demonstrated should include the establishment of a registration record for each individual, consisting of the individual's name, address, results of monitoring, and time of decontamination, if any, or as otherwise designated in the plan. Audio recorders, camcorders, or written records are all acceptable means for registration.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise indicated in the extent-of-play agreement.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 6 Support Operation/Facilities

Sub-element 6.b — Monitoring and Decontamination of Emergency Worker Equipment

Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment, including vehicles. (NUREG-0654, K.5.b)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to implement radiological monitoring and decontamination of emergency worker equipment, including vehicles.

Extent-of-play

The monitoring staff should demonstrate the capability to monitor equipment, including vehicles, for contamination in accordance with the Offsite Response Organizations (OROs) plans and procedures. Specific attention should be given to equipment, including vehicles, that was in contact with individuals found to be contaminated. The monitoring staff should demonstrate the capability to make decisions on the need for decontamination of equipment, including vehicles, based on guidance levels and procedures stated in the plan and/or procedures.

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

The area to be used for monitoring and decontamination should be set up as it would be in an actual emergency, with all route markings, instrumentation, record keeping and contamination control measures in place. Monitoring procedures should be demonstrated for a minimum of one vehicle. It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as radiator grills, bumpers, wheel wells, tires, and door handles should be demonstrated. Interior surfaces of vehicles that were in contact with individuals found to be contaminated should also be checked.

Decontamination capabilities, and provisions for vehicles and equipment that cannot be decontaminated, may be simulated and conducted by interview.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 6 Support Operation/Facilities

Sub-element 6.c — Temporary Care of Evacuees

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. (Found in MASS CARE - Preparedness Operations, ARC 3031). Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h, J.12)

- Was this criterion adequately demonstrated?

Yes _____ No _____ N/A _____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) demonstrate the capability to establish relocation centers in host areas. The American Red Cross (ARC) normally provides congregate care in support of OROs under existing letters of agreement.

Extent-of-play

Under this criterion, demonstration of congregate care centers may be conducted out of sequence with the exercise scenario. The evaluator should conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with ARC 3031. In this simulation, it is not necessary to set up operations as they would be in an actual emergency. Alternatively, capabilities may be demonstrated by setting up

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

stations for various services and providing those services to simulated evacuees. Given the substantial differences between demonstration and simulation of this objective, exercise demonstration expectations should be clearly specified in extent-of-play agreements.

Congregate care staff should also demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability may be determined through an interview process.

If operations at the center are demonstrated, material that would be difficult or expensive to transport (e.g., cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility (facilities). However, availability of such items should be verified by providing the evaluator a list of sources with locations and estimates of quantities.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

EVALUATION AREA 6 Support Operation/Facilities

Sub-element 6.d — Transportation and Treatment of Contaminated Injured Individuals

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2; H.10; K.5.a, b; L.1, 4)

- Was this criterion adequately demonstrated?

Yes ____ No ____ N/A ____

If **No**, identify all exercise issues by addressing the elements listed on the attached **ISSUES FOR CRITERION** form. **Remember, if there is no effect or potential effect, there is no exercise issue.**

- **Reminder:** Provide a complete evaluator packet to the Team Leader with a written narrative summary, timeline of observations, and all forms and information used during the exercise. Cite outstanding performance where observed.

THE FOLLOWING **INTENT** AND **EXTENT-OF-PLAY** INFORMATION IS PROVIDED FOR GENERAL REFERENCE ONLY. CONSULT THE SITE-SPECIFIC EXTENT-OF-PLAY AGREEMENT AND YOUR TEAM LEADER FOR HOW IT APPLIES TO YOUR ASSIGNED LOCATION.

Intent

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) should have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

Extent-of-play

Monitoring, decontamination, and contamination control efforts will not delay urgent medical care for the victim.

Offsite Response Organizations (OROs) should demonstrate the capability to transport contaminated injured individuals to medical facilities. An ambulance should be used for the response to the victim. However, to avoid taking an ambulance out of service for an extended time, any vehicle (e.g., car, truck, or van) may be utilized to transport the victim to the medical facility. Normal communications between the ambulance/dispatcher and the receiving medical facility should be demonstrated. If a substitute vehicle is used for transport

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

to the medical facility, this communication must occur before releasing the ambulance from the drill. This communication would include reporting radiation monitoring results, if available. Additionally, the ambulance crew should demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.

Monitoring of the victim may be performed before transport, done enroute, or deferred to the medical facility. Before using a monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities should be completed as they would be in an actual emergency. Appropriate contamination control measures should be demonstrated before and during transport and at the receiving medical facility.

The medical facility should demonstrate the capability to activate and set up a radiological emergency area for treatment. Equipment and supplies should be available for the treatment of contaminated injured individuals.

The medical facility should demonstrate the capability to make decisions on the need for decontamination of the individual, to follow appropriate decontamination procedures, and to maintain records of all survey measurements and samples taken. All procedures for the collection and analysis of samples and the decontamination of the individual should be demonstrated or described to the evaluator.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

NARRATIVE SUMMARY FOR CRITERION:

(EVALUATOR MUST WRITE A NARRATIVE AND INSERT IT HERE.)

Evaluator: _____	Team Leader: _____	Date: _____
Site: _____	Assignment: _____	Previous ARCA? _____

ISSUES FOR CRITERION:

(Address the following elements:)

Condition (describe the inadequacy):

Possible Cause (what is responsible):

Reference (cite the specific NUREG-0654 element, regulation, etc.):

Effect (what resulted, or could have resulted, from this issue):

Recommendation (how to correct it):

D. REP Exercise Preparation Guides for Evaluators and Team Leaders

1. Purpose and Organization

The *REP Exercise Preparation Guide* is to assist evaluators, including Team Leaders, to prepare for a radiological emergency response exercise. The guide is to be used during pre-exercise preparations, **not** during the exercise itself. The REP Exercise Preparation Guide (EPG) has three parts: (1) General Guidance for Evaluators, (2) General Guidance for Team Leaders, and (3) Guidance for Preparing to Evaluate Specific Evaluation Areas and Criteria. The third part, Guidance for Preparing to Evaluate Specific Evaluation Areas and Criteria, is not included in this manual. **None** of these guides are to be completed and submitted to FEMA as part of the documentation of an evaluation assignment.

2. General Guidance for Evaluators

The General Guidance for Evaluators on the following pages includes the basic tasks and responsibilities for all evaluators starting from the time they receive their evaluator packet until the exercise has ended and they have been released. Therefore, General Guidance for Evaluators should be included in all evaluator packets. FEMA Regional Offices may add to or modify the document to accommodate regional or exercise-specific variations in tasks and responsibilities.

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR EVALUATORS

When you receive your evaluator packet:

1. Review the contents of the packet and the transmittal letter. (Call the designated point of contact if you have any questions.)
2. Check your assignment(s). Does your expertise fit this assignment? Does this assignment require your coordination with an evaluator in another location?
3. Inform point-of-contact of any potential conflict of interest you may have.
4. Make travel arrangements and follow instruction given in the pre-exercise letter or memorandum regarding lodging. (NOTE: Return time may depend on exercise outcome).
5. Using the Pre-Exercise Evaluator Preparation Guide for each of your assigned Evaluation Criteria, review the plan, procedures, and extent-of-play and prior issues.
6. Develop a list of actions expected at your location for your assignment(s); e.g., by Emergency Classification Level (ECL).
7. Identify questions for clarification during the pre-exercise meeting.
8. Record related work hours on appropriate form (if applicable).
9. Bring appropriate clothing for the season and assignment. For most exercise locations this means appropriate business attire.
10. Bring a laptop computer and printer, if available. Work products should be provided in Word 2000 format.

Pre-Exercise Tasks:

1. Attend pre-exercise meeting(s) and ensure that you have completed tasks 1-8 above (if not already completed).
2. Attend team meeting(s); clarify extent of your assignment(s).
3. Obtain any change-pages to the evaluator packet.
4. Ask exercise questions related to the extent-of-play while State, county and utility representatives are present at the pre-exercise meeting, if appropriate.

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR EVALUATORS

Pre-Exercise Tasks (cont'd):

5. Obtain answers to any outstanding questions you may have during your team meeting(s), especially any that you have concerning extent-of-play requirements and demonstration issues.
6. Know approximate Emergency Classification Level times *per* the scenario (provided in the evaluator packet and/or in the pre-exercise meetings).
7. Know responsibilities for gathering player-produced documents (logs, sign-in rosters, etc.)
8. Establish method of reporting time, e.g., 24-hour clock, and synchronize watches.
9. Confirm time to be at evaluation location.
10. Obtain contact number(s) for emergencies, media inquiries, significant exercise issues, etc. (Usually the Regional Assistance Committee [RAC] Chair or designee.)
11. Review exercise policy on immediate correction of potential issues during exercise play. Determine the RAC Chair's instruction on re-demonstration, i.e., does the RAC Chair need to approve a re-demonstration or may the Team Leader or Evaluator make that determination?
12. Review regional policy on preliminary direct feedback to exercise participants.
13. Confirm information on post-exercise meetings to provide to exercise participants.
14. Locate evaluation site and determine travel time.
15. Understand regional expectations regarding narratives and issues.
16. Understand the review process and deadlines for work products.

During the exercise:

1. Wear appropriate business attire (exceptions to business attire will be discussed by regional personnel). Wear identification badges if instructed to do so at the pre-exercise briefing.
2. Arrive at your assigned location at least 15-30 minutes prior to any scheduled activity.

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR EVALUATORS

During the exercise (cont'd):

3. Upon arrival, introduce yourself to the controller and key participants.
4. Prior to the start of exercise play, the team leader or other designated individual should arrange to receive copies of all logs, messages (including Emergency Alert System [EAS] messages), sign-in rosters, notification forms and other materials developed during the exercise. Do not leave your location without these, unless instructed otherwise!
5. While focusing on your particular assigned criteria, be sure to also observe and record as much of the pertinent activity as possible outside of your primary area of responsibility.
6. Develop a detailed time record for observed events.
7. Remain as unobtrusive as possible:
 - Remember that people present at your location are aware that you are evaluating them; they want to do a good job; they may be nervous and apprehensive; try to put them at ease and establish a good rapport from the outset.
 - If you have questions about exercise play, refer to the exercise controller at your location or other designated contact.
 - Refer questions from media to the designated contact.
8. Never reveal the scenario to the players.
9. Remember that your job during the exercise is to observe and document, not to participate in or interfere with exercise play:
 - Do not give instructions or orders during the exercise;
 - Do ask questions as needed to complete your evaluation;
 - Be sure to ask questions at the appropriate times so that you are not interrupting the staff or prompting them to take actions they may have forgotten;
 - Remember an actual emergency always takes precedence over exercise activities.
10. Avoid use of ORO communications equipment that could interfere with the players.

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR EVALUATORS

During the exercise (cont'd):

11. REMEMBER: Evaluators have no authority to terminate the exercise.

12. As soon as the exercise is terminated:

- Meet with your team and develop initial positive and negative observations;
- Present preliminary direct feedback to exercise participants, including: (1) Thank the participants for their part in the exercise. (2) Provide positive comments to the participants (3) Provide recommendations for improvement based on your experience and describe the problems that you saw. Remember: Do not classify these problems with the terms “Deficiency,” “Area Requiring Corrective Action (ARCA),” or “Planning Issue.”
- Provide participants with the time and place of post-exercise meetings.

After the Exercise:

1. Attend post-exercise evaluator debriefing meetings, as required.

- Be prepared to provide input to the exercise timeline, if applicable.
- Be prepared to discuss the problems you identified with the exercise play at your location, if applicable.
- Discuss your evaluation with the other evaluators previously identified to develop the complete picture of the play.

2. Write Reports (Narratives and Issues) and complete within the time frame specified.

- Be SURE of the facts you record.
- Write legibly on all handwritten items such as timelines, timesheets, etc. (Please bring a laptop to type reports, if possible. Work products should be provided in Word 2000 format.)

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR EVALUATORS

After the Exercise (cont'd):

- The narrative summary should be a logical discussion of events that support your recommendation that the criterion was or was not adequately demonstrated. This discussion must include who, what, when, where, why and how, as applicable to the criterion you are evaluating. All issues should be described in the narrative and in a detailed, “stand-alone” write-up of the issue.
- Use exact names of facilities, organizations and titles of participants (not their names) and compare with those specified in the plan. Verify all spellings and use only approved and accurate acronyms and define them in your text.
- Do not draw conclusions without supporting facts, for example, state “No evidence of annual calibration” not “instruments were not calibrated.”
- **PREVIOUS ARCAs:** State whether previous ARCAs have been resolved and the corrective action demonstrated. A detailed discussion of the actions accomplished to resolve the ARCA must be provided.
- **UNRESOLVED ARCA:** If the ARCA has not been resolved, indicate this as an “Unresolved ARCA.” Describe in detail the reason for this conclusion.
- **NEW ISSUE:** If there is a new issue, the discussion must address the following elements: condition, possible cause, reference (include specific references; e.g., NUREG-0654, plans or procedures), effect or potential effect and recommendation.
- The review process will be discussed during the pre-exercise briefing.
- Prior to release from the exercise, submit your completed evaluation modules and the following materials to your Team Leader:
 1. Evaluator logs and timeline;
 2. All copies of player logs, messages, etc., collected at your location (if directed to do so by your Team Leader);
 3. Your evaluator binder;
 4. Any other material supporting issues you have identified;
 5. Time sheets with regular and overtime, as specified by the Region; and
 6. Other materials required by the Region.

3. General Guidance for Team Leaders

The General Guidance for Team Leaders on the following pages includes the basic tasks and responsibilities for the position starting from the time the Team Leader receives the evaluator packet until the exercise has ended and they have been released. Therefore, General Guidance for Team Leaders should be provided in the evaluator packets for all Team Leaders. It is anticipated that the FEMA Regional Offices will add to or modify the document to accommodate regional- or exercise-specific variations in tasks and responsibilities.

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR TEAM LEADERS

Team Leaders have all the responsibilities listed for evaluators. In addition, the following tasks are to be performed. Any Regional differences or preferences should be discussed during the initial evaluator's briefing.

1. Attend all meetings as assigned.
2. Arrange meetings with team prior to and after the exercise.
3. Arrange pre-exercise site visit, if applicable.
4. Using the REP Exercise Preparation Guide for each Evaluation Criterion assigned to the team, review with the team members, the plan, procedures, and extent-of-play and prior issues provided.
5. Ensure that all evaluation criteria and prior issues are assigned to team members.
6. Resolve team members' questions.
7. Oversee immediate correction of issues (re-demonstration).
8. Collect potential exercise issues from team members.
9. Review team members' evaluations of outstanding previous issues.
10. Consolidate timeline information for the team, if applicable.
11. Obtain talking points from team members and prepare and present post-exercise presentations, if applicable.
12. Provide input on issue classification and attend meetings as requested by the FEMA RAC Chair.
13. Provide guidance and support to team members.
14. Facilitate the observation of critical activities by team members.
15. Track and monitor the timeliness of team member's narrative write-up submissions.

REP EXERCISE PREPARATION GUIDE

GENERAL GUIDANCE FOR TEAM LEADERS

16. Coordinate:

- Collection of documents,
- Post-exercise debriefing, and
- With other Team Leaders on common/related issues or evaluation areas.

17. Provide input on performance of evaluators.

Section III.D — Exercise Preparation Guides

E. AMERICAN RED CROSS GUIDANCE

[An excerpt from *American Red Cross, Disaster Services Regulations and Procedures Mass Care – Preparedness and Operations ARC 3031 Apr. 1987*³]

Contents (abridged)

Part X. Preparedness for Radiological Emergencies

1. Planning Concepts
2. Mass Shelters
3. Reception Centers
4. Voluntary Evacuations
5. Special Health Concerns

Attachment 5-A Guidelines for Establishing Shelters

Attachment 5-B Guide for Shelter Managers

Table 1 – Staffing Requirements, Mass Care Facility

X. PREPAREDNESS FOR RADIOLOGICAL EMERGENCIES

In recent years significant emphasis has been placed on the need for off-site emergency planning around fixed nuclear facilities in the United States. Planning for radiological emergencies is required by law, supported by the Federal Emergency Management Agency (FEMA) and the Nuclear Regulatory Commission, and conducted by state and county governments and planning firms with which they may contract.

In radiological emergencies, the Red Cross role in support of state and county governments is limited to conducting mass shelter and mass feeding operations in government-designated facilities during evacuations. Consequently, many Red Cross chapters in states with currently licensed nuclear reactors are responsible for working with their local governments to make plans for mass care during such emergencies.

Administrative Regulations (ARC 3003) sets forth the basis for providing Red Cross services following radiological emergencies in which there is or may be company liability or insurance coverage or both. General guidelines relating to chapter preparedness for radiological emergencies are contained in *Chapter Preparedness and Disaster Operations* (ARC 3027). The purpose of this section is to provide chapters with specific details concerning Mass Care planning for these disasters.

³ Section X of ARC Procedure 3031 has been reformatted to more closely follow the format of this document and does not appear as originally submitted by the American Red Cross. The content has not been changed.

Planning Concepts

In the event of an accident at a fixed nuclear power reactor within the United States, the facility operator, the Nuclear Regulatory Commission, and the state government make an immediate assessment of the incident and ongoing evaluations of its potential outcome. They determine which of four emergency action levels the accident warrants. The four levels, beginning with the least serious, are unusual event, alert, site area emergency, and general emergency. These levels provide a standardized method of describing the seriousness of the accident and determining appropriate actions that government agencies and the Red Cross should take.

During a site area emergency or general emergency, steps may be taken to protect people living near the facility from potential or actual radiation release. Several possible protective actions may be taken. People may be “sheltered” inside their homes, offices, and other buildings if a release has already occurred or if a release is imminent but is expected to be of short duration. In this situation it is better to protect people by keeping them indoors-sheltered by the building from exposure-than risk their exposure while attempting to evacuate the area.

Another protective action involves the evacuation of people potentially threatened by a release. The Nuclear Regulatory Commission has determined evacuation areas to include a specific radius around each facility. This area is called the plume exposure pathway emergency planning zone (EPZ). Areas in which this EPZ is located are called “risk areas,” while those into which people would be evacuated are called “host areas.”

Chapters involved in radiological emergencies requiring evacuation would receive support from the national sector. However, chapters in designated “host” areas are responsible for preplanning mass care operations for radiological emergencies with the appropriate local government agency, and-at the very least-initiating these services if an accident should occur. Chapters that fall totally within risk areas have no responsibility for providing mass care in their jurisdiction, but they may be asked to assist in evacuating the elderly and hospitalized and residents of nursing homes. Volunteer and paid staff who reside or work within the EPZ would evacuate as directed by local officials during such an emergency.

Mass Shelters

Although Red Cross chapters are responsible for selecting facilities for mass shelters in other types of disasters, in radiological emergencies this responsibility falls to the host area government. In preparing a radiological emergency response plan, the responsible government agency is required to plan for a sufficient number of mass shelters within the host area to accommodate 50 percent of the population in the EPZ.

To support government efforts during radiological emergencies, the Red Cross may assume primary responsibility for operating mass shelters. Therefore, chapters need to actively participate in the planning activities of their local government, or of those firms responsible for planning, to ensure that designated mass shelter facilities meet Red Cross standards, that an emergency mass care facility survey is completed for each designated facility, and that written agreements are in place for the use of these facilities. Once all of the host area mass shelters

within the chapter jurisdiction have been designated, the chapter is responsible for ensuring that a sufficient number of personnel are trained as shelter managers, shelter workers, and health services workers and are available to initiate mass care operations in shelters. If it has sufficient resources, the chapter should also plan to continue operating the shelters.

The operation of shelters in radiological emergencies should not vary significantly from their operation in natural disasters. There may, however be certain special health concerns relating to these emergencies, such as potential exposure of evacuees to radiological release and the emotional impact of this threat on the shelter population. (See “Special Health Concerns” later in this section.)

Shelter managers, nurses, and other mass care personnel being prepared to respond to radiological emergencies must have a basic understanding of the effects and characteristics of these emergencies, since misconceptions may lead personnel to misunderstand their role and the potential effects of the accident. The training course Providing Red Cross Disaster Health Services in Radiation Accidents (see ARC 3076-R) and various local training programs are available to prepare mass care personnel.

In planning for mass shelters with the appropriate government agency, chapters should encourage the inclusion of certain instructions in written materials distributed to the public concerning response to radiological emergencies. The public should be advised in the event of evacuation to bring bedding, clothing, infant care items, and prescription medications with them to the shelter. They should also be advised as to pet care.

Reception Centers

Most response plans for radiological emergencies specify that reception centers or staging points be set up along evacuation routes. These facilities may –

- Provide radiological monitoring and decontamination of evacuees.
- Provide special information to evacuees.
- Direct evacuees to the proper mass shelter facilities.
- Register people who have left their homes. (This procedure may have subsequent legal implications relating to claims against the plant operator.)

The appropriate government agency is directly responsible for establishing and operating these centers. The Red Cross needs to assign a liaison worker to each of these facilities, however, to monitor and assist in controlling the flow of evacuees to mass shelters. It is important that this liaison worker be able to communicate with the chapter headquarters and mass shelter facilities. If necessary, this communication may be through use of the Red Cross or amateur radio system.

As part of their mass care preparedness planning, chapters in whose jurisdiction reception centers have been designated should appoint liaison personnel and assign communications equipment to the centers. Any other services the chapters may choose to provide at these centers should be arranged for only after all of the chapter’s mass care responsibilities at designated mass shelter facilities have been met. Refer to *Administrative Regulations* (ARC 3003) for information concerning company liability in radiological emergencies.

Voluntary Evacuations

During radiological emergencies it is likely that some people living near the nuclear facility will evacuate before an official recommendation to do so is given. Additionally, some people who live beyond the designated risk area will evacuate if evacuation is recommended. Although no one would be turned away from a mass shelter facility because they did not reside within the designated risk area, chapters must consult with the appropriate national sector office before establishing a mass care facility specifically for such groups.

If evacuees seek shelter from areas beyond those designated, host areas chapters should direct them back into the host area if feasible. Otherwise they should contact the appropriate national sector office. When a large number of evacuees are seeking shelter outside the designated host area, the chapter may establish mass shelters with the concurrence of the operations headquarters.

Special Health Concerns

The major health concern unique to radiological emergencies is that people may suffer radiation exposure and contamination. The appropriate government agency is responsible for radiological monitoring and decontamination. Red Cross involvement in these activities is limited to –

- Seeing that Red Cross volunteer and paid staff are monitored as necessary.
- Alerting the appropriate government agency when evacuees arriving at shelters have not been monitored or when evacuees show signs of illness that might be related to radiation exposure.

Plans for radiological emergencies usually specify that radiological monitoring and decontamination be done at reception centers or special staging points. This procedure is desirable because evacuees would then enter host areas and mass shelters without the possibility of contaminating others. However, monitoring and decontamination are sometimes planned for the same facilities specified as mass shelters. Chapters directly involved in government planning should advocate that monitoring and decontamination activities be located at reception or staging centers.

When these activities must occur at shelters, it is crucial that decontamination activities and evacuees who have not yet been monitored be strictly segregated from those who have been monitored. Procedures used to decontaminate evacuees may involve the removal and disposal of clothing. Chapters may not provide new clothing to evacuees without the approval of the operations headquarters. In their preparedness planning, chapters should seek to involve governmental and other voluntary organizations capable of providing used clothing as well as other needed supplies and service.

Attachment 5-A GUIDELINES FOR ESTABLISHING SHELTERS

In time of disaster, the Red Cross is responsible for providing temporary housing for persons who are unable to make their own arrangements. Disaster shelters are of two types: mass shelters and individual shelters. A mass shelter is a large facility used to provide temporary shelter for groups of disaster victims. An individual shelter is an arrangement whereby a family is temporarily housed in a hotel, apartment, or other rental unit at the expense of the Red Cross. Before setting up a mass shelter, a chapter should attempt to house families in individual shelters or with relatives, friends, or other persons offering space. Since a shelter provides only a temporary means of caring for people, plans should be made to close the shelter as quickly as possible. Families are best able to recover from the effects of a disaster when they are in their own living quarters.

The Shelter Committee

The chapter's shelter committee is responsible for organizing and operating shelters when they are required. The committee is responsible for identifying facilities to be used, designating space within the shelter for specific uses, and acquiring the necessary supplies and equipment.

Predisaster Planning

For shelters to function effectively, chapters must plan for them before disaster strikes. The chapter's written disaster plan should include –

- Surveys of buildings suitable for use as shelters, along with written confirmation of their availability. Agreements with building owners and managers should specify how the building will be maintained and who will pay for utilities and repair of damage.
- A list of equipment that the Red Cross is permitted to use in each building identified as a potential shelter.
- Other supplies and equipment that will be needed and how they can be obtained.
- A plan for training volunteers to operate the shelter.

All parties involved should have written copies of building surveys and agreements.

Potential Problems

In planning for shelters, chapters need to be aware of potential problems that may arise in their operation:

- Sanitation problems may develop if facilities are inadequate for the number of persons being housed.
- Victims may exhibit behavioral problems because of stress.
- Costs of operating the shelter are likely to be significant.
- Some families may be slow in making plans to leave the shelter.

Shelter Requirements

To be effective as a shelter, a facility should –

- Be located reasonably near victims' homes.
- Be safe and healthful.
- Have an adequate supply of drinking water.
- Have adequate toilet and bathing facilities.
- Have facilities for cooking, serving, and storing food.
- Be accessible to public transportation.
- Have adequate fire and police protection.

Services Provided at the Shelter

Every shelter must have Red Cross shelter management coverage on a 24-hour basis. The Red Cross provides shelter occupants with the following services:

- Full meals and afternoon snacks if facilities in the shelter are inadequate, food is prepared and served elsewhere.
- Individual assistance and counseling. The Red Cross provides occupants with help in solving disaster-related problems such as the need for transportation and permanent housing.
- Emergency medical services. Nursing services are available at all times, and shelter occupants are referred to a physician as required.
- A specific area for sleeping. Occupants are provided with cots and blankets.
- Recreation services. Activities are provided to relieve tensions and improve morale of occupants of all ages. Appropriate recreation activities include movies, television, games, and crafts.

Services in support of the shelter effort include scheduling of staff, record keeping; purchase, storage, and maintenance of supplies; and enforcement of safety, fire, and sanitation regulations.

Allocation of Space

The shelter manager is responsible for allocating space in the facility for the following purposes:

- Registration of shelter occupants
- Family assistance
- Shelter manager's office
- Nurse's office
- Sleeping accommodations with family units together (40 to 60 square feet per bed)
- Food service area
- Restrooms and bathing facilities
- Storage area for occupants' possessions
- Nursery

Shelter Registration

A *Disaster Shelter Registration* form (Form 5972) should be completed for each family registering at the shelter. If copies of these forms are not immediately available, the following information on each family should be recorded on an index card:

- The last, first, and middle names of the head of household and spouse, and the wife's maiden name.
- Names and ages of all family members.
- Any health problems of family members.
- The family's pre-disaster address.
- The date the family arrived at the shelter.

When a family leaves the shelter, the following information should be recorded:

- The date the family departs.
- Their post-disaster address.

Essential Shelter Needs

Equipment needed in a shelter includes cots and blankets, chairs, tables, drinking cups, hot plates for warming baby formula, brooms, trash cans, loudspeakers, Red Cross flags, emergency equipment such as candles, lanterns, flashlights, and generators, and a telephone. Shelter supplies needed include soap, towels, toilet tissue, disposable diapers, and cleaning items such as detergent and soap. Office supplies needed include a telephone, carbon paper, disaster forms, cards, file folders, paper, paper clips, and pencils. For a more complete list of items that should be prepacked in a shelter manager's kit, see Attachment 4.

Staffing the Shelter

The shelter committee is responsible for assigning volunteers to operate the shelter. The number of volunteers needed depends on the number of occupants per shelter. Shelter staff in addition to the shelter manager and medical staff may include Family Service workers, feeding staff, a storekeeper, and maintenance staff. The shelter manager has the following responsibilities:

- To initiate and maintain housing, feeding, health, and recreational services within the shelter.
- To inventory supplies and equipment before the shelter opens.
- To arrange for round-the-clock supervision of the shelter.
- To assign and schedule workers in the shelter.
- To maintain utility and janitorial services.
- To obtain, store, distribute, and safeguard shelter supplies and equipment.
- To maintain records of borrowed and purchased equipment, and to keep all receipts.
- To keep records of shelter activities and compile reports to be submitted to the chapter chairman or other responsible person.
- To coordinate all Red Cross activities in the shelter.
- To close the shelter. All borrowed property should be returned, and a receipt for their return should be secured. Buildings and grounds must be clean.
- To inventory supplies and equipment when the shelter closes.

Attachment 5-B GUIDE FOR SHELTER MANAGERS

Shelter Operation

This material is planned to serve as a guide and check list for the individual responsible for opening a school, public building, church, or other facility to be used for the reception and care of disaster victims.

The shelter manager should be someone familiar with the building to be used: its size, facilities, and day-to-day level of supplies. If the shelter is a school, the principal or a designated member of his staff may serve under agreements in effect between the school board and the Red Cross. Authorization for use of the school as a shelter should be made through normal school district channels.

The regular staff working in the building — faculty as well as office, cafeteria, and maintenance staffs — should be the primary resource for personnel to operate the shelter, as they have the most complete knowledge of the facility and can best safeguard against damage and misuse. The shelter manager may expect full support from the chapter to provide needed equipment, supplies, and additional staff. The Red Cross will pay for food and other supplies on hand that are used in the shelter as well as additional supplies required.

Mass care shelters are generally intended to operate for a limited time — one to four days. In most instances, shelter residents are able to return to their homes within a short time or to locate other housing. The remaining families can be assisted by Family Service workers in solving this problem.

While in operation, the shelter must meet a multitude of human needs both physical and psychological under adverse conditions. The young, old, ill, employed, and unemployed all have special needs to be met through recreation, medical services, transportation, maintenance, and social work services available through the shelter.

Duties of the Shelter Manager

Pre-Disaster Planning

Chapters are responsible for identifying and planning for shelters, and predesignated shelter managers should participate in this activity. Such preparedness comprises –

1. Developing a plan for the operation of the buildings to include:
 - A survey of the building.
 - A floor plan of the building and grounds, and use of space.
2. Estimating the resources and supplies necessary to operate the shelter based on its capacity:
 - Type and quantity of supplies such as soap, towels, and cleaning equipment.
 - Food and cooking equipment.
 - Provision for bedding and medical and first aid supplies.

3. Estimating additional staff needed for actual operations including support staff from other disaster committees.
4. Planning a method of registering each person housed in the shelter. (Last name first, pre-disaster home address.)

Note. The shelter manager may appoint one or more assistants for any of the above duties. However, they are all ultimately the responsibility of the shelter manager.

At a Time of Disaster

After being officially notified to open a building for the shelter, the shelter manager should:

1. Proceed immediately to the building.
2. Establish and maintain contact with Red Cross disaster headquarters.
3. Alert basic staff and activate the building.
4. Arrange the building for operation, and inventory supplies and equipment. Prepare rooms for receiving people and for other purposes.
5. Order supplies and equipment from Red Cross disaster headquarters and report any need for support such as medical services.
6. Recruit additional personnel. (Disaster victims in the shelter may be recruited.)
7. Begin feeding beverages and snacks as soon as the shelter opens, and begin regular meal service as soon as possible.
8. Keep in constant touch with the shelter chairman at disaster headquarters, giving progress reports and a daily count of persons housed and fed.
9. Arrange for the care of pets, if necessary.

Shelter Reception and Registration

The shelter manager is responsible for ensuring that a simple record is kept of every person who is housed in his shelter. He may delegate this responsibility to one or more assistants as needed.

At the reception desk, the family or individual should be assigned to an appropriate lodging area. They should proceed to the registration desk before going on to their lodging area.

Shelter registration cards (Form 5972) should be used if available. If not, plain 3x5 inch cards may be used for this registration. The following information is needed:

1. Last, first, and middle names for husband and wife (include wife's maiden name)
2. Names and ages of all family members
3. Any health problems
4. Pre-disaster address
5. Date arrived in the shelter; date departed
6. Post-disaster address

Registration cards should be made in duplicate. One copy is for the shelter manager's files, and one copy is sent to disaster headquarters for the Welfare Inquiry section. If it is not practicable to make cards in duplicate, an alphabetical list of shelter occupants can be submitted.

When victims move from the shelter, it should be so indicated on the registration cards, and disaster headquarters should be notified.

It is important that people be registered as soon as they arrive in the shelter, or as soon as practicable. (This is not to be confused with registration of families for individual assistance, i.e., Family Service.)

Food

In general, feeding for a shelter operation falls into one of two categories: (1) feeding within the shelter, where cafeteria facilities already exist, and (2) the arrangement to feed persons in a nearby commercial establishment. (In some instances, it may be feasible to create temporary kitchen and feeding equipment within the shelter.)

The shelter manager is administratively responsible for feeding people housed under his management. The shelter manager may have the use of staff that normally operate the cafeteria, or may have to rely on food delivery by other units of the Mass Care function.

The shelter manager is responsible for maintaining a daily count of people fed within his shelter and reporting this information to Red Cross headquarters.

The person in charge of feeding will arrange for someone to receive, store, issue, and keep records of supplies.

Shelter occupants can assist as cooks' helpers and servers, and can serve on the cleanup crew. Hot meals should be provided twice a day. Additionally, a midday lunch should be provided for children, the aged, expectant and nursing mothers, workmen, and disaster victims doing heavy work.

Special diet problems will be handled as recommended by medical and nursing staff on duty at the shelter.

Menus will be planned in terms of foods available, with perishable foods being used first. Sufficient food should be prepared to provide second servings. USDA foods may be available, subject to approval by appropriate government agencies (e.g., school administration) and Red Cross authorities.

Medical and Nursing

The Red Cross is responsible for providing adequate medical and nursing services in all Red Cross operated shelters to care for the sick and injured, protect the health of residents, and supervise the sanitation of the shelter.

The Red Cross chapter is responsible for providing competent Disaster Health Services staff in each shelter. If such staff is unavailable, the shelter manager should assign someone with knowledge of first aid to provide limited care. In the absence of qualified medical staff, all

medical problems should be referred to a local emergency room or physician. In such an event, the shelter manager must retain records of individuals — a description of their ailment or injury and the medical facility used.

Child Care

If a shelter remains open for more than a day or two, a child-care facility should be considered in order to ease the burden on parents. The shelter manager will designate someone to be responsible for childcare.

Recreation

If large numbers of persons are housed in the shelter, and if the shelter operation is prolonged, it is advisable to provide recreation facilities. It is the shelter manager's responsibility to decide when and if recreation is needed. He may appoint one or more persons to develop appropriate recreational activities.

The shelter manager may call upon resources at disaster headquarters for assistance in providing recreational supplies such as films, newspapers, equipment, games, and TV sets.

Shelter Maintenance

The shelter manager will designate someone to be responsible for building maintenance and upkeep. The staff normally responsible for the facility may be available for this purpose. Shelter residents should, however, be asked to assist. Necessary activities include the following:

1. Acquire additional supplies and equipment such as furniture, safety and cleaning equipment, and tools.
2. Arrange for daily janitorial service.
3. Arrange for the installation of additional temporary facilities such as showers and toilets.
4. Move furniture as necessary.
5. Prepare and supervise the use of the grounds and yard for parking and recreation, if necessary.
6. Maintain a system of record keeping to facilitate returning the building to its original condition upon closing, and document any damages and related expenses.

Floor Plan and Space Allocation

In the allocation of space, consideration should be given to the following needs:

- Manager's office
- Emergency medical care
- Feeding area
- Reception and registration
- Storage of food and supplies
- Possible storage of occupants' belongings
- Childcare

Section III.E — American Red Cross

- Rest room for staff (in larger shelters)
- Family Service interviewing area
- Recreation areas

Some guidelines to use in planning:

- 1 toilet per 40 persons (6 for 200, 14 for 500)
- 40 to 60 square feet of sleeping space per person
- 1 quart of drinking water (minimum) per person per day
- 5 gallons of water per person per day (all uses)
- 2,500 calories per person per day (approximately 3-1/2 pounds of unprepared food)

Staff Needed

- Shelter manager
- Assistant Manager
- Nurse
- Registration
- Food preparation
- Building maintenance and sanitation

TABLE 1 Staffing Requirements, Mass Care Facility

The following are suggested requirements for shelters operating on a 24-hour basis. Circumstances will dictate actual needs.

Title	200 Victims	500 Victims	1,000 Victims
Manager and assistants	3	3	3
Clerks and recorders*	1	1	2
Messengers and communicators	2	2	5
Security and safety*	2	2	4
Transportation coordinator*	1	1	1
Nurses (Red Cross)	3	4	5
Doctor (on call)	1	1	2
Ancillary (first aid)*	4	8	15
Clerical (nursing assistance)*	1	2	4
Cook	1	3	4
Cook assistants*	3	4	8
Kitchen helpers	4	12	24
Servers*	3	3	6
Building maintenance supervisor	1	1	1
Janitor*	2	2	2
Reception/registrar*	3	4	6
Dormitory supervisor	1	2	3
Interviewers (assistance)	5	11	21
Records and report*	1	2	4
Supply/storekeeper	1	1	2
Recreation (babysitters)*	3	4	9
Total	46	73	131

*In most instances, 85 percent of the work should be done by shelter residents.

F. USE OF STATE, TRIBAL AND LOCAL PERSONNEL AS REP EXERCISE EVALUATORS

REP Program Strategic Review Initiative 3.0

Use of State, Tribal and Local Personnel as REP Exercise Evaluators

Administrative Process

1. **TRAINING REQUIREMENT:** State, Tribal, and local personnel must successfully complete the training/experience required of all FEMA evaluators.
2. **APPLICATION PACKET:** Applicants complete and submit to the Regional Assistance Committee (RAC) Chair their qualification packets, which must include:
 - A resume describing actual related experience and/or equivalent experience,
 - Biography describing REP experience,
 - Evidence of completion of mentoring assignment,
 - Evidence of completion of the REP Evaluator's Course,
 - Two reference letters addressing evaluators' ability to be impartial, suitability, and qualifications (applicants must be high school graduates, or equivalent [college is recommended]), and
 - A commitment signed by the applicant's employer.
3. **APPLICATION REVIEW:** The RAC Chair conducts the initial review and determines whether to submit the application to the RAC Advisory Council (RAC AC), which reviews applications twice a year. Selected candidates are assigned to their respective Home of Record FEMA Region for incorporation into that Region's roster. State, county, or local personnel may not evaluate within their State (Home of Record); county personnel may not evaluate their State (Home of Record) or within the emergency planning zone for their site. The accepting RAC Chair is responsible for communications with the assigned evaluator, and will send to each applicant a selection/nonselection letter that references the RAC AC as the decision-making body.
4. **NATIONAL REGISTRY:** The RAC AC maintains a national registry of available qualified State, Tribal, and local evaluators.
5. **HOST REGION RESPONSIBILITIES:** The FEMA Host Region will:
 - Request evaluator(s) for upcoming exercise;
 - Match training/educational skills to the assignment;
 - Complete an informal proximity and travel cost/cost benefit analysis;
 - Budget and pay for invitation travel expenses, including transportation and per diem;
 - Select, assign, and approve or disapprove evaluator candidates; and
 - Send invitational travel letter to prospective evaluators.

6. **EVALUATOR RESPONSIBILITIES:** The evaluator will:
 - Evaluate at least one exercise per year, to remain active,
 - Review all exercise material,
 - Participate in all required exercise meetings,
 - Prepare all written exercise evaluator documentation, and
 - Ensure time flexibility in participating as an evaluator (may require weekend duty).

7. **EVALUATOR EMPLOYER COMMITMENT:** The evaluator’s employer will facilitate employee attendance at all required evaluator training, meetings, etc. and agree, in writing, to the conditions stated in Item #8 below.

8. **CONDITIONS:** State, Tribal, and local REP exercise evaluators are not eligible to receive any compensation, workmen’s or other; health insurance; life insurance; annual or sick leave; Federal monetary awards; nor any other benefits from FEMA. Evaluator performance does not count toward career tenure, nor time in service to the Federal government.

9. **IMPLEMENTATION:** FEMA Headquarters announced this policy during the 2002 National REP Conference and will post the information on the REP Home Page. The application process will then begin.

G. EXERCISE CREDIT

BILLING CODE 6718-02-P

FEDERAL EMERGENCY MANAGEMENT AGENCY Radiological Emergency Preparedness: Exercise Credit

AGENCY: Federal Emergency Management Agency (FEMA).

ACTION: Notice with request for comments.

SUMMARY: Pursuant to the Radiological Emergency Preparedness (REP) Program Strategic Review initiative 1.6, the Federal Emergency Management Agency (FEMA) is proposing to implement a policy for granting REP exercise credit to offsite response organizations (ORO) for participation in an actual incident or in a non-REP exercise. The subject notice contains the activities eligible for consideration for credit, guidelines for submitting a request, and documentation required.

DATES: FEMA must receive comments on or before [Insert date 60 days after date of publication in the *Federal Register*].

ADDRESSES: You may submit your comments to the Rules Docket Clerk, Office of the General Counsel, Federal Emergency Management Agency, 500 C Street, SW, Room 840, Washington DC 20472, or send them by e-mail to rules@fema.gov. Please reference “REP Exercise Credit” in the subject line of your e-mail or comment letter.

FOR FURTHER INFORMATION CONTACT: Vanessa E. Quinn, Chief, Radiological Emergency Preparedness Branch, Technological Services Division, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472; (202) 646-3664; vanessa.quinn@fema.gov.

SUPPLEMENTARY INFORMATION: Pursuant to the REP Program Strategic Review Initiative 1.6, FEMA is proposing to implement a policy for granting REP exercise credit to offsite response organizations for participation in an actual incident or in a non-REP exercise. The subject notice contains the activities eligible for consideration for credit, guidelines for submitting a request, and documentation required.

Background

A radiological emergency response plan is developed and exercised in order to have reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency. FEMA evaluates the exercises to ensure that the OROs have the capability to respond to a radiological emergency. An ORO’s response to man-made or natural events or participation in a non-REP exercise may also test all or part of the plan. For those areas that were tested, it may be appropriate to give credit in place of certain aspects of an evaluated REP exercise.

Credit for Responding to an Actual Emergency

When an ORO responds to an actual incident involving radioactive materials, FEMA can consider granting exercise credit for such response activities as environmental monitoring; monitoring for contamination of persons and equipment and/or other activities, if these activities were successfully performed according to the applicable plan and procedures. FEMA may also consider granting credit for generic response activities, such as mobilization of personnel and facilities,⁴ for those OROs affected by an actual radiological incident.

When an ORO responds to an actual incident that does not involve radioactive materials, the ORO may qualify for credit for generic response functions and activities, such as mobilization, facilities, communications equipment, and congregate care.

The Credit columns in Table 7, entitled Detailed Federal Evaluation Process Matrix, indicate which functions and activities may be considered for the granting of exercise credit for response to a radiological or a non-radiological emergency.

When requesting exercise credit for a response to an actual emergency, an ORO should ensure that the response included the following four elements:

- A prompt and timely mobilization of key State and local government staff and providers responsible for REP emergency functions;
- An actual reporting of the key REP staff who, in accordance with the plans, would report to the facility;
- Activation of the facility(ies) of the responding jurisdiction(s); and
- Establishment of communication links among responding organizations

The ORO should then provide the following documentation to FEMA:

1. Type and nature of the emergency;
2. Timeline, to include time of response and time State and local REP staff arrived at the facility;
3. Sign in-out sheet with name, function, date, and time;
4. List of involved REP personnel and organizations and their connection to a REP response;
5. Communications log showing the establishment of communication links with other organizations;
6. List of involved jurisdictions;
7. Emergency decisions made and implemented;
8. Resources (facilities, equipment, etc.) used; and
9. List of corrective actions or improvement items identified in the after-action report.

⁴ FEMA will evaluate all facilities, as a baseline, during the first exercise under the new Evaluation Criteria. Therefore, FEMA will not grant exercise credit for facilities for the first exercise using the new Evaluation Criteria.

Credit for Participating in Preparedness Exercises Other than REP

ORO(s) may request REP exercise credit for demonstrating preparedness capabilities in FEMA exercises other than REP. These capabilities could include congregate care, facilities,¹ and/or other activities performed in the exercise. The Credit columns in the attached Table 1 indicate which functions and activities may be considered for the granting of exercise credit for participation in an exercise other than REP when the exercise has a radiological component or when the exercise does not have a radiological component.

ORO credit requests for participating in non-REP exercises must specify the exercise and document the ORO's participation, including the activities it performed and a list of corrective actions or improvement items identified in the exercise after-action report. If credit is granted, the ORO must also include its exercise participation in the Annual Letter of Certification.

Process

An ORO submits its application for credit to the appropriate FEMA Region. The application must specify the basis for the credit (response to a radiological emergency, response to a non-radiological emergency, participation in a radiological exercise other than REP or participation in a non-radiological exercise other than REP) and the REP evaluation area criterion(a) for which credit is requested. The application must also contain the appropriate documentation, as specified above. The FEMA Region will submit the request for credit, along with the Region's review and recommendations, to FEMA Headquarters. FEMA Headquarters will determine whether the credit requested will be granted, and if so, will issue an exemption to an ORO from FEMA evaluation of this criterion(a) in the next REP exercise. However, even if FEMA exempts a criterion from exercise evaluation, certain fundamental radiological emergency response functions and activities that are integral to the REP exercise must still be demonstrated in order to conduct the exercise. FEMA will specify any exempted activities that the ORO must still demonstrate. FEMA will not evaluate these activities unless their demonstration had a potential or actual adverse effect on the REP exercise.

Timeline

The ORO requesting credit for responding to an actual radiological or non-radiological emergency should submit the request to the appropriate FEMA Regional Office within 90 days following the event. The ORO requesting credit for participation in a non-REP exercise should submit the initial information 60 days in advance of the non-REP exercise and follow-up documentation within 90 days after the non-REP exercise. Any credit that is granted must be completed in time to allow inclusion in the extent-of-play discussions 90 days prior to the REP exercise for which credit is granted. FEMA will grant exemption from evaluation of a specific exercise criterion only once during the six year cycle for the applicable REP exercise. In addition, FEMA will not consider exemption from evaluation if the emergency response activity for which credit would be sought occurred more than two years prior to the date of the next scheduled REP exercise.

Section III.G — Exercise Credit

Dated:

Michael D. Brown,
General Counsel.

TABLE 7 Detailed Federal Evaluation Process Matrix^a

Evaluation Area and Sub-Elements	Consolidates REP-14 Objective(s)	Minimum Frequency ^b	Out-of-Sequence of Exercise Scenario	Credit		Staff Ass't Visit
				Radiological	Non-Radiological	
1. Emergency Operations Management	1, 2, 3, 4, 5, 14, 17, 30					
a. Mobilization		Every Exercise	NO	YES	YES	NO
b. Facilities		Every Exercise	NO	YES	YES	YES
c. Direction and Control		Every Exercise	NO	NO	NO	NO
d. Communications Equipment		Every Exercise	NO	NO	NO	NO
e. Equipment and Supplies to Support Operations		Every Exercise	YES	YES	NO	YES
2. Protective Action Decision-making	5, 7, 9, 14, 15, 16, 17, 26, 28					
a. Emergency Worker Exposure Control		Every Exercise	YES	YES	NO	YES
b. Radiological Assessment & Protective Action Recommendations & Decisions for the Plume Phase of the Emergency		Every Exercise	NO	YES	NO	NO
c. Protective Action Decisions for the Protection of Special Populations		Every Exercise	NO	YES	YES	NO
d. Radiological Assessment and Decision-making for the Ingestion Exposure Pathway ^c		Once in 6 yrs.	NO	YES	NO	NO
e. Radiological Assessment & Decision-making Concerning Relocation, Reentry, and Return ^c		Once in 6 yrs.	NO	YES	NO	NO
3. Protective Action Implementation	5, 14, 15, 16, 17, 27, 29					
a. Implementation of Emergency Worker Exposure Control		Every Exercise	YES	YES	NO	NO
b. Implementation of KI Decision		Once in 6 yrs. ^d	YES	YES	NO	NO
c. Implementation of Protective Actions for Special Populations		Once in 6 yrs. ^e	YES	YES	YES	YES
d. Implementation of Traffic and Access Control ^f		Every Exercise	YES	YES	YES	YES

TABLE 7 Detailed Federal Evaluation Process Matrix (Cont.)

Evaluation Area and Sub-Elements	Consolidates REP-14 Objective(s)	Minimum Frequency ^b	Out-of-Sequence of Exercise Scenario	Credit		Staff Ass't Visit
				Radio-logical	Non-Radio-logical	
e. Implementation of Ingestion Pathway Decisions		Once in 6 yrs.	NO	YES	NO	NO
f. Implementation of Relocation, Reentry, and Return Decisions		Once in 6 yrs.	NO	YES	NO	NO
4. Field Measurement and Analysis	6, 8, 24, 25					
a. Plume Phase Field Measurements and Analysis		Every Full Participation Exercise ^b	YES	YES	NO	NO
b. Post Plume Phase Field Measurements and Sampling		Once in 6 yrs.	YES	YES	NO	NO
c. Laboratory Operations		Once in 6 yrs.	YES	YES	NO	NO
5. Emergency Notification and Public Information	10, 11, 12, 13					
a.1 Activation of the Prompt Alert and Notification System		Every exercise	NO	NO	NO	NO
a.2 Activation of the Prompt Alert and Notification System (Fast Breaking)	10					
a.3 Notification of Exception Areas and/or Backup Alert and Notification System within 45 Minutes		Every exercise – as needed	NO	NO	NO	NO
b. Emergency Information and Instructions for the Public and the Media		Every exercise	NO	NO	NO	NO
6. Support Operations/Facilities	18, 19, 20, 21, 22					
a. Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees		Once in 6 yrs. ^e	YES	YES	NO	NO
b. Monitoring and Decontamination of Emergency Worker Equipment		Once in 6 yrs. ^e	YES	YES	NO	NO

TABLE 7 Detailed Federal Evaluation Process Matrix (Cont.)

Evaluation Area and Sub-Elements	Consolidates REP-14 Objective(s)	Minimum Frequency ^b	Out-of-Sequence of Exercise Scenario	Credit		Staff Ass't Visit
				Radio-logical	Non-Radio-logical	
c. Temporary Care of Evacuees		Once in 6 yrs. ^g	YES	YES	YES	YES
d. Transportation and Treatment of Contaminated Individuals		Every exercise	YES	YES	NO	NO

^a See Evaluation Criteria for specific requirements.

^b Each State within the 10-mile EPZ of a commercial nuclear power site shall fully participate in an exercise jointly with the licensee and appropriate local governments at least every two years. Each State with multiple sites within its boundaries shall fully participate in a joint exercise at some site on a rotational basis at least every two years. When not fully participating in an exercise at a site, the State shall partially participate at that site to support the full participation of the local governments.

^c The plume phase and the post-plume phase (ingestion, relocation, reentry and return) can be demonstrated separately.

^d Should be demonstrated in every biennial exercise by some organizations and should be demonstrated at least once every six years by every ORO with responsibility for implementation of KI decision.

^e All facilities must be evaluated once during the six-year exercise cycle.

^f Physical deployment of resources is not necessary.

^g Facilities managed by the American Red Cross (ARC), under the ARC/FEMA Memorandum of Understanding, will be evaluated once when designated or when substantial changes occur; all other facilities not managed by the ARC must be evaluated once in the six-year exercise cycle.

H. SCENARIO OPTIONS

Development of the scenario and negotiations for determining the extent of exercise play are crucial for ensuring a well-integrated exercise. These two elements are also essential in driving the simulated emergency response. Whatever variations or options are used, the concept of an integrated exercise must be maintained.

Prior to an exercise, the utility and site-specialist (and in some regions the state) will have a meeting to discuss the exercise scenario. Over the years the scenarios have become stagnant, with participants often being very predictable. Therefore, it became apparent that variations of possible scenario options are greatly needed.

Five recommendations that would provide for variation of scenarios for exercises and drills have been identified that would enhance the REP exercise process without affecting the basis for the technical design. Varying scenarios will provide the opportunity to enhance training and provide for more realistic emergency responses.

1. States may demonstrate their post-plume phase capabilities more frequently than once every six years. Demonstration criteria for this option would be developed during the extent-of-play meeting.

- The OROs may conduct post-plume phase exercise activities (i.e., ingestion, relocation, recovery and return activities) more than once every six years. Many OROs have indicated a desire to have more post-plume exercises.
- Demonstration criteria for this option would be the same for any post-plume phase exercise, with the extent-of-play negotiated during the six-year agreement, if there is a six-year agreement. Otherwise, it would be negotiated during the extent-of-play meeting.
- Post-plume phase activities may be performed in connection with a plume exercise or they may be separated. If separated, the plume phase technical data may be extended into post-plume activities. However, the basis for performing the post-plume phase activities may be derived from other technical data that is discrete from what was used in the previous plume exercise.

NOTE: Regardless of whether the activity is from the previous plume exercise or a new scenario, a Pre-Exercise Briefing is necessary to ensure that all response organizations (Federal, State, Tribal, and local) are familiar with the data and assumptions.

- When the post-plume phase is an extension of the previous plume phase exercise, the briefing should include the PADs made during that exercise.
- If a new scenario is used, the briefing should include discussion of the data, information, and controller injects necessary for the development of PADs as a point of departure for the post-plume phase exercise.

2. Mini-scenarios may be developed to support the increased participation of local responders.

- Mini-scenarios, sometimes referred to as “controller injects,” can provide increased participation by local, Tribal, and sometimes State response organizations during lulls in the primary radiological response activities. For example, a HAZMAT mini-scenario incident would require an immediate response.
- Mini-scenarios may be useful in enhancing exercise play for offsite emergency response OROs. However, developers of the mini-scenarios should ensure that they do not detract from the primary goals, technical analysis, and timeline of the primary scenario.

NOTE: It should be clearly understood that prior to any “mini-scenarios” being injected into the exercise that the controller confer with the evaluation Team Leader.

3. Exercises may begin at any of the four ECLs (NOUE, Alert, SAE, GE), and/or an ECL may be skipped to reflect a fast-breaking event.

- Events triggering an offsite response may be designed to initiate exercise play at any ECL and/or provide for skipping an ECL(s). To drive offsite response, an event most generally reaches the GE classification. However, the scenario writer and site specialist should review the plans, as some actions do occur at the Site Area Emergency.
- Controller injects must be provided to allow evaluation of field monitoring activities, if
 - There is no simulated release of radioactivity, and
 - There is more than one state involved, and the plume does not enter the second state.
- Skipping ECLs can provide more interesting and less predictable scenarios.

NOTE: The advantages gained by not declaring the four ECLs in their usual order can be lost if the “dress rehearsal” drill that is held at many sites employs the same use of ECLs out of their usual order. It is strongly recommended that the scenario for the “dress rehearsal” *not* be the same scenario that is used during the evaluated exercise.

4. The plume and post-plume phases of the exercise may be separated by days or months.

- Plume and post-plume activities may be separated to provide OROs with additional time to perform these activities more comprehensively. Separation can be by days or months and should be negotiated either in the six-year agreement or the extent-of-play meeting.

5. State, Tribal, and local governments may provide a representative who is involved in exercise planning on a confidential basis and is not a member of the response team. This confidential representative (or trusted agent) may provide input to enhance development of the scenario and extent-of-play agreement, and, therefore, enhance exercise play.

- A confidential representative (or trusted agent) is a member of a response organization who may participate substantially in the exercise design but must agree not to divulge exercise details to potential players or others involved with the exercise.
- If a trusted agent is used in the exercise, he or she should not be in roles that would be compromised by being privy to confidential information and must agree to not use confidential exercise information until it is released.
 - For example, a primary decision maker would not serve as a trusted agent, but a dose assessment staff member, reception center monitor, dispatcher, etc., could be a trusted agent.
- A trusted agent can be used except when a personnel shortage could affect full EOC participation or other response activities. In these situations, the assigned trusted agent cannot be a member of the response team.
- Participation by trusted agents in exercise planning and development of the scenario and extent-of-play is beneficial not only to State, Tribal, and local governments, but also to exercise play because they can provide a different perspective.
- Trusted agents would provide information on post-plume information such as agricultural crops, status and location of roads and bridges, and other information that would assist the scenario writer with the basic scenario and any mini-scenarios.

Billable Hours: Yes

I. CORRECT ISSUES IMMEDIATELY

During tabletop exercises, drills and other demonstrations conducted out-of-sequence from an integrated exercise, if FEMA and the offsite response organizations (ORO) agree, the FEMA Evaluator may have the participants re-demonstrate an activity that is determined to be not satisfactorily demonstrated. Immediate correction of issues in an integrated exercise is authorized only if it would not be disruptive and interrupt the flow of the exercise and affect other Evaluation Areas. The determination for which REP functions and activities could be candidates for re-demonstration should be agreed upon during the extent-of-play negotiations.

Immediate correction of issues requires Evaluators with expertise in the activity being corrected. Thus, it is imperative that such FEMA Evaluators have the requisite professional knowledge or have been trained in the activity they are observing and evaluating in order to provide the necessary training to the participants.

During the demonstration, the participant performs the activity. If it is performed unsatisfactorily, the FEMA Evaluator informs the participant of this. The Evaluator provides another opportunity for the participant to re-demonstrate the activity. The appropriate ORO responsible for training may give the participant some training prior to the re-demonstration. If the demonstration is performed correctly, the issue would later be classified and documented, with a statement in the exercise report that it was corrected during the exercise. If the demonstration is still performed unsuccessfully, the issue is documented and referred to the RAC Chair to determine the appropriate classification of the issue.

The RAC Chair will make the final determination on the correction of issues from the Evaluator's narrative description of activities and the appropriate documentation.

This is effective March 31, 2000.

Section III.I — Correct Issues Immediately

J. EVALUATION OF EMERGENCY MEDICAL SERVICES DRILLS

During the Atomic Safety and Licensing Board hearing involving offsite emergency response planning and preparedness for the San Onofre Nuclear Generating Station, and in subsequent litigation in the United States Court of Appeals, the court ruled that the existing interpretation of the required pre-accident medical arrangements for contaminated injured individuals was not sufficient. As a result of this litigation, FEMA, in consultation with the Nuclear Regulatory Commission, developed Guidance Memorandum MS-1, Medical Services, concerning the planning guidance for offsite emergency medical facilities, transportation and personnel.

NUREG-0654/FEMA-REP-1, Rev. 1, requires that State and local offsite response organizations demonstrate their capabilities regarding emergency medical services for contaminated injured members of the general public in annual drills. As a result of the court decision, the Nuclear Regulatory Commission requested that FEMA evaluate each annual emergency medical services drill until State and local offsite response organizations demonstrated that their capabilities had been substantially enhanced. When FEMA determined that these capabilities were substantially enhanced and were consistently adequate to protect the public health and safety in the event of a radiological emergency at a commercial nuclear power plant, the evaluation frequency could be reduced to biennial.

Using applicable FEMA Radiological Emergency Preparedness Program guidance and evaluation methodology, FEMA has determined that these capabilities have been enhanced and consistently demonstrated as adequate; therefore, offsite emergency medical services drills need to be evaluated only biennially. FEMA will, at the request of the State or involved local government, continue to evaluate the drills on an annual basis.

If more than two medical facilities and transportation providers are designated as “primary” or “backup,” they also must be evaluated biennially. Other medical facilities and transportation providers included in the plan and supplemental to those listed as primary and backup should be evaluated at least once every six years. This policy is a clarification of Strategic Review Initiative 1.2.

A medical drill must demonstrate the ability of the transportation services as well as medical facilities to handle an injured and contaminated individual without spreading contamination. The term “contaminated injured” was defined in Guidance Memorandum MS-1 as (1) contaminated and otherwise physically injured, (2) contaminated and exposed to dangerous levels of radiation, or (3) exposed to dangerous levels of radiation.

Each location should have at a minimum one primary local hospital and one backup hospital for the evaluation and emergency treatment of “contaminated injured” members of the general public. In addition, there should be one primary and one backup ambulance service. It is preferred that the primary and backup medical facilities (hospital and ambulance) be located outside the EPZ. However, that is not always possible. Therefore, MS-1 recommends that at least one medical facility (either primary or backup medical facility) be located at least 15 to 20 miles from the nuclear power plant.

Section III.J—Emergency Medical Services

During a MS-1 drill, both the transporting service and the hospital will be evaluated. Medical facilities should have at least one trained doctor and one trained nurse to perform and supervise the treatment of contaminated injured members of the general public. Contaminated injured individuals transported to medical facilities should be monitored as soon as possible to assure that everyone (ambulance and hospital) is aware of the medical and radiological status of the individual. However, if an ambulance defers monitoring to the hospital, then the ambulance crew must presume that the patient is contaminated and demonstrate appropriate contamination controls until the patient is monitored. It is allowable for an ambulance to demonstrate up to the point of departure for the hospital and then have a nonspecialized vehicle transport the “victim” to the medical facility. This option is used in areas where removing an ambulance from service to drive a great distance (over an hour) for a drill would not be in the best interests of the community. For further details on medical drills, see Section III.B.6, sub-element 6.d, Criterion 6.d.1.

Billable Hours: Yes

K. Post-Exercise Activities and Documentation⁵

The Standard Exercise Report Format (SERF) is intended for use by Federal Emergency Management Agency (FEMA) staff, members of the Regional Assistance Committees (RACs) and all others who participate in the preparation of Radiological Emergency Preparedness (REP) Program Exercise Reports. This guidance has been issued to promote expediency in the preparation of REP Program exercise reports and greater uniformity in the content and organization of those reports. This section contains a revised version of the SERF Guidance Document originally issued in October 1995. Evaluation Areas have been included in this revision.

⁵ This section (pages III-239 through III-270) reproduces portions of the FEMA document *Standard Exercise Report Format*. Page numbers have been revised to correspond to this manual.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Radiological Emergency Preparedness Program

Standard Exercise Report Format

Prepared by:

**Office of National Preparedness
Technological Services Division
Radiological Emergency Preparedness Branch**

Table of Contents

A. OVERVIEW.....	III-245
1. INTRODUCTION	III-245
2. PURPOSE OF THE SERF	III-245
3. CONCEPTS OF THE SERF	III-246
B. GENERAL GUIDANCE	III-247
1. SUMMARY	III-247
2. TIME FRAME AND MILESTONES FOR PREPARATION OF EXERCISE REPORTS	III-248
3. CLASSIFICATION OF EXERCISE ISSUES	III-253
a. Deficiencies and Areas Requiring Corrective Action	III-254
b. Reclassification of Areas Requiring Corrective Action as Deficiencies.....	III-255
c. Plan Issues	III-256
d. Areas Recommended For Improvement	III-256
4. STANDARDIZED EXERCISE ISSUE NUMBERING	III-257
a. Elements of the Standard Exercise Issue Number	III-257
b. Assigning Exercise Issue Numbers	III-258
c. Method of Issue Number Assignment and Tracking	III-258
d. Re-numbering Prior Exercise Issues	III-259
5. DEFINITION OF EVALUATION AREA CRITERION STATUS	III-259
6. EXERCISE REPORT PREPARATION	III-261
a. Before the Exercise	III-261
b. At the Exercise Site	III-262
c. After the Exercise	III-263
d. General Considerations on Appearance of Exercise Reports	III-264
7. EXERCISE REPORT REVIEW	III-267
8. FEMA HEADQUARTERS' ASSISTANCE	III-269

List of Tables

Table 1: Milestones in REP Exercise Report Preparation.....	III-249
Table 2: NUREG-0654 Planning Elements under Which Exercise Deficiencies Might Be Assessed.....	III-255

List of Figures

Figure 1: Illustration of the Standard Exercise Issue Number.....	III-258
Figure 2: Exercise Issue Number Assignment Form.....	III-259
Figure 3: Illustration of Outline Layout — Indentations.....	III-266

A. OVERVIEW

1. INTRODUCTION

The Standard Exercise Report Format (SERF) is intended for use by Federal Emergency Management Agency (FEMA) staff, members of the Regional Assistance Committees (RAC) and all others who participate in the preparation of Radiological Emergency Preparedness (REP) Program Exercise Reports. It is a companion to the FEMA REP Program Manual, April, 2002, which facilitates the planning and conduct of REP exercises, and the Evaluation Area criteria, September 2001, which are used by FEMA and other Federal agencies to evaluate and document the performance of off-site response organizations (ORO) participating in REP Program exercises. This guidance is issued to promote expediency in the preparation of REP Program exercise reports and greater uniformity in the content and organization of those reports.

This guidance supersedes report preparation guidance contained in the FEMA REP Standard Exercise Report Format (SERF) document, dated October, 1995.

2. PURPOSE OF THE SERF

The purpose of the SERF is three-fold:

- To achieve completeness, uniformity and consistency among FEMA Regions, in the content and format of exercise reports as well as consistency in the interpretation of program guidance;
- To ensure that the reports are transmitted to the NRC and OROs in a timely manner by simplifying the report preparation and review process; and
- To provide report preparation guidelines relative to report content and format.

The SERF is a structured format for use in preparing the biennial REP Program exercise evaluation report. The SERF defines the scope of the information contained in the report, including tables, timelines, definitions, etc., the format and style in which the information is presented, and the standards used in preparing and reviewing these reports.

This document provides the minimum-level presentation for reporting the results and findings of the evaluation of biennial REP Program exercises. If the FEMA Region so desires, additional material, such as narrative descriptions of exercise play or emergency planning zone (EPZ) maps, may be included. However, the 90-calendar-day time frame will not be extended to accommodate the inclusion of such additional material.

3. CONCEPTS OF THE SERF

The SERF was developed on the following basic concepts:

- Information in the exercise report should be complete enough to preclude misinterpretation and present an accurate, if somewhat abbreviated, representation of the REP Program and the full scope of exercise considerations;
- The format and style of all REP Program exercise reports should be consistent to facilitate comparison among FEMA Regions of the full scope of exercise considerations; and
- The exercise report preparation and review process should allow for completion of the final exercise report in a time frame conducive to utilization of the contents of the report for planning, training, and correction of exercise issues by the emergency preparedness community.

B. GENERAL GUIDANCE

1. SUMMARY

This section of the SERF contains guidance of a general nature, which is important to achieving and maintaining uniformity and consistency of exercise reports.

- Milestones For Exercise Report Preparation

The milestones for report preparation were revised to provide for completion of the final exercise report no later than 90 calendar days after the exercise. Section B.2 details the milestones and provides suggestions on how they can be met.

- Classification of Exercise Issues

Review and analysis of numerous exercise reports over the past decade indicates that there has been a lack of consistency and uniformity in the interpretation and application of REP policies and procedures used during exercise evaluation and report preparation relative to issue identification and classification. Section B.3 discusses FEMA Headquarters' interpretation of REP policies and considerations used in the classification of exercise issues.

- Standardized Exercise Issue Numbering

Significant variations in the method of numbering exercise issues have been noted among Regions, among sites in a Region, and among exercises at a site. FEMA Headquarters has developed a standardized system for numbering exercise issues: Deficiencies and Areas Requiring Corrective Action (ARCA). This system is designed to achieve consistency in numbering exercise issues within and among the FEMA Regions and expedite the tracking of exercise issues on a nationwide basis. Section B.4 presents the standardized method of issue numbering developed by FEMA Headquarters.

- Definition of Evaluation Area Criterion Status

The terms used to describe the status of exercise issues have also been subject to variations in their interpretation. Section B.5 defines and clarifies the terms that are used in the Exercise Evaluation and Results section of the exercise reports.

- Exercise Report Preparation

FEMA Headquarters has provided the FEMA Regions with two computer disks containing boilerplate narrative and tabular/matrix formats which the Regions can use in the preparation of exercise reports. Regional staff should prepare site-

specific boilerplate narrative, which will not change significantly between exercises (e.g., EPZ description, etc.). Section B.6 contains guidance and suggestions on modifying and/or creating boilerplate sections and various aspects of the physical appearance of the final exercise report.

- **Exercise Report Reviews**

Section B.7 provides guidance for the review of the draft and final exercise reports prior to issuance.

- **FEMA Headquarters' Assistance**

Section B.8 discusses the role of FEMA Headquarters' personnel, if present, at the exercise site.

2. TIME FRAME AND MILESTONES FOR PREPARATION OF EXERCISE REPORTS

The following are some of the key elements of the milestones and exercise report preparation process:

- The time frame for the preparation of the final exercise reports is 90 calendar days;
- The draft exercise report will be available for review by the State(s) and RAC members 30 days after the exercise; and
- The FEMA Regional Director will transmit the final exercise report directly to the appropriate NRC Regional Office with copies to the NRC's Office of Nuclear Reactor Regulation in Washington, DC; FEMA Headquarters, Office of National Preparedness, Technical Services Division, REP Branch; State(s); and RAC members no later than 90 calendar days after the exercise.

The FEMA Interim REP Program Manual identifies 22 separate tasks to be accomplished before, during, and after the exercise. These tasks comprise the overall REP Program exercise process. Tasks 11-19 are of particular importance in the preparation of REP Program exercise reports.

TABLE 1: Milestones in REP Exercise Report Preparation

Time (No later than X days after exercise)	Task	Task Description
Exercise Day (ED)	11	Post-exercise evaluator/participant interviews conducted.
ED + 1	12	Post-exercise evaluator debriefing conducted
ED + 2	13	RAC Chairperson initiates consultation process for Deficiencies. RAC Chairperson will provide FEMA Headquarters with pertinent facts relative to each Deficiency, in writing, prior to any discussion among FEMA Headquarters and Regional personnel.
ED + 2	14	Evaluation Area forms, exercise issues, and narratives completed and submitted to RAC Chairperson.
ED + 2	15	Post-exercise participants' briefing conducted.
ED + 2	16	Public meeting conducted
ED + 10	17	Official notification of identified Deficiency(ies) through letter from FEMA Regional Director (consistent with consultation with FEMA and NRC Headquarters and RAC members) to State(s) and RAC members with information copy to licensee.
ED + 20	18	State(s) acknowledges receipt of Deficiency letter and proposes a Schedule of Corrective Actions for the identified Deficiency(ies).
ED + 30	19	Draft exercise report provided to State(s) and RAC members by FEMA Region for review and comment.
ED + 60	19	Comments and Schedule of Corrective Actions for the identified ARCAs provided by the State(s) and comments provided by RAC members on draft exercise report.
ED + 90	19	Final exercise report distributed by FEMA Regional Director to the NRC's cognizant Regional Office with copies to the NRC's Office of Nuclear Reactor Regulation in Washington, DC; FEMA Headquarters, Office of National Preparedness, Technical Services Division, REP Branch; State(s); and RAC members.

It is important to understand what is required at, and between, each of the milestones, in order to successfully prepare the final exercise report within the time allotted. Each milestone is discussed below in greater detail.

- Exercise Day (ED), Task 11 — Conduct Post-Exercise Evaluator/Participant Interview

These interviews, conducted immediately after the end of the exercise, have the two-fold purpose of (1) gathering additional data needed to document exercise performance and (2) allow the evaluators to summarize their observations of exercise play and offer suggestions for improvement for the participants. The evaluator's summary and suggestions should include both positive and negative

observations and should not draw any conclusions about the classification of any identified issues.

- ED + 1, Task 12 — Debrief Exercise Evaluators

As soon as possible after the exercise, the RAC Chairperson debriefs the exercise evaluators to secure accurate and complete information to serve as the basis for the preliminary information that will be presented at the participants' briefing (Task 15). Evaluators meet with team leaders and FEMA staff to summarize exercise observations and documentation and identify exercise issues. A specific chronology of exercise events or "timeline" is compiled to provide a frame of reference for evaluating exercise performance and time-sensitive activities such as alert and notification. The timeline data is included in the exercise report.

- ED + 2, Task 13 — Initiate Deficiency Consultation Process

During the evaluators' debriefing, the RAC Chairperson will give careful consideration to any identified issues that might be assessed as Deficiencies. To facilitate the timely identification and assessment of Deficiencies, the RAC Chairperson must discuss potential Deficiencies with the State(s) and provide FEMA Headquarters with pertinent facts relative to each potential Deficiency in writing, prior to any discussion among FEMA Headquarters and Regional personnel. Once this is done, a consultation process involving the RAC Chairperson, OROs, RAC members, and FEMA and NRC Headquarters is initiated to discuss potential Deficiencies and determine appropriate corrective actions.

- ED + 2, Task 14 — Prepare Written Evaluation

Evaluators can begin preparing Evaluation Area forms and narratives even before their debriefing on ED + 1 and should submit all completed forms and narratives, including new exercise issues and the status of prior ARCAs, to the RAC Chairperson's staff for review, no later than two days after the exercise.

During the first two days after the exercise, the Regional staff should begin reviewing the completed EA forms, narratives, pertinent exercise documents, exercise issues, proposed corrective actions, and status of prior ARCAs. At this time, the Regional staff can begin preparing the exercise results and findings for incorporation into the draft exercise report.

- ED + 2, Task 15 — Conduct Post-Exercise Participants' Briefing

Within 48 hours after the completion of the exercise, the RAC Chairperson meets with the exercise participants to discuss the preliminary results of the exercise. The participants can also present a critique of their own performance as well. This briefing provides a means for summarizing and clarifying the results of the

exercise and is conducted in accordance with 44 CFR Part 350.9(a) and (d). Other FEMA and RAC personnel may attend and participate in this briefing, as determined by the RAC Chairperson.

- ED + 2, Task 16 — Conduct Public Meeting

Also within 48 hours after the completion of the exercise, the RAC Chairperson conducts a public meeting attended by representatives of FEMA, NRC, other appropriate RAC member agencies, exercise participants, and interested members of the public and media. This meeting provides the first formal notification to the public of the overall results of the exercise. Guidance on the format and conduct of the public meeting is contained in FEMA Interim REP Program Manual, section III.A, Milestones and Tasks.

- ED + 10, Task 17 — Notify State(s) of Deficiency(ies)

Once the activities of the first two days after the exercise are completed, the RAC Chairperson continues the consultation process on the assessment of Deficiencies. No later than 10 days after completion of the exercise, the consultation process and assessment of any Deficiency(ies) should be completed. By this date, the Regional Director officially notifies the State(s) by letter of any identified Deficiency(ies). This letter must be consistent with and reflect the discussion and coordination among FEMA, the State(s), NRC, and RAC members. Specifically, the letter should contain the following basic information: (1) jurisdictions affected, (2) REP Evaluation Area Criteria under which the Deficiency(ies) were assessed, (3) description of the Deficiency(ies) identified, and (4) time frame for completion of the required remedial actions. An information copy of this letter should be sent to the licensee as a courtesy.

While it is FEMA's intent to provide this formal documentation to the State(s) within 10 calendar days, there may be circumstances where the 10-day time frame may not be met. However, through the consultation and coordination process, all involved exercise participants will be made aware of significant exercise issues and problems immediately following the exercise.

- ED + 20, Task 18 — State(s) Acknowledges Receipt of Deficiency Letter

No later than 20 days after the exercise or 10 days after the date of the Deficiency letter(s), the State(s) should formally acknowledge receipt of the Deficiency letter from the Regional Director. The State(s)' acknowledgment should also identify the specific remedial actions which will be accomplished to correct the Deficiency(ies) and the proposed schedule for completing those remedial actions, i.e., the Schedule of Corrective Actions.

The Schedule of Corrective Actions will indicate to the RAC Chairperson whether or not the results of the evaluation of those remedial actions will be

available in time for inclusion in the final exercise report. If the remedial actions correcting the Deficiency(ies) have been completed no later than day 75 after the biennial exercise, the results and findings of those remedial actions will be included in the biennial exercise report. If not, the biennial exercise report will be issued within 90 calendar days after the exercise, and a separate report on the remedial actions will be prepared and issued within 30 calendar days after they have been completed.

- ED + 30, Task 19 — Prepare Draft Exercise Report

Of course, the preparation of the draft exercise report should have begun at the exercise site, or even before the exercise, with quality assurance procedures to keep the report preparation on schedule and in line with the SERF guidance.

No later than 30 days after the exercise, the FEMA Region will transmit the draft exercise report to the State(s) and RAC members for review and comment. The State(s) comments must include a Schedule of Corrective Actions for all ARCAs identified in the report. All comments must be returned to the Region no later than 60 days after the exercise.

All comments should be aimed at ensuring (1) the accuracy and overall quality of the final exercise report, (2) consistent application of established REP policies and guidance in evaluating the performance of all exercise participants, and (3) identification and proper classification of Deficiencies and ARCAs.

- ED + 60, Task 19 — Prepare Final Exercise Report

No later than 60 days after the exercise, all report comments must be received by the FEMA Region. The RAC Chairperson should review the State's Schedule of Corrective Actions for the identified ARCAs and all comments as they are received, and discuss these comments, by telephone, with the commenters, if necessary, for clarification.

Following this review, the RAC Chairperson should supervise revisions to the draft report and produce the final exercise report. No new or additional information, which was not available for review and comment in the draft report, should be added to the report at this stage without full coordination with the pertinent exercise participants. An example of this would be the addition of the results and findings of corrective actions taken to correct any identified Deficiency(ies).

- ED + 90, Task 19 — Distribute Final Exercise Report

No later than 90 days after the exercise the FEMA Regional Director will send the final exercise report to the appropriate NRC Regional Office with copies to the NRC's Office of Nuclear Reactor Regulation in Washington, DC; FEMA

Headquarters, Office of National Preparedness, Technical Services Division, REP Branch; State(s); and RAC members.

3. CLASSIFICATION OF EXERCISE ISSUES

There are three classifications of issues which are identified in a REP Program biennial exercise:

- **Deficiency** — “...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that off-site emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant.”
- **Area Requiring Corrective Action (ARCA)** — “...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety.”
- **Plan Issue** — “...an observed or identified inadequacy in the ORO’s emergency plan or implementing procedures, rather than in the ORO’s performance.” Plan Issues are not considered to be exercise issues.

Only Deficiencies and ARCAs must be included in the exercise report. Any Plan Issues that are identified may be provided to the State(s) and local jurisdictions via letter by the Regional Director no later than 60 days after the exercise.

It is the responsibility of the RAC Chairperson to assign one of these three classifications to each issue that is identified during an exercise. The RAC Chairperson must coordinate with FEMA Headquarters the assessment of Deficiencies, before formal issuance to the affected State(s). In classifying each issue, the RAC Chairperson must consider the overall exercise performance of the ORO which is being assessed the issue. While some subjective judgement must be used, classification must be based on the definitions listed above, the facts surrounding the ORO’s participation in the exercise and the demonstration of individual REP Evaluation Area Criteria.

Just as each classification of issue has its own definition, it has its own requirements for correction:

- Because of the potential impact of Deficiencies on the public health and safety, they should be corrected within 120 days after the exercise date through appropriate remedial actions, including remedial exercises, drills, or other actions, including plan revisions.
- Correction of ARCAs should be verified before or during the next biennial exercise.

- Plan Issues should be corrected through the revision of the appropriate State and local governments' plans or procedures during the next annual plan review and update, submitted for FEMA review and reported in the State's Annual Letter of Certification.

a. Deficiencies and Areas Requiring Corrective Action

Deficiencies and ARCAs have both similarities and significant differences that are discussed below.

Similarities:

- Both classifications center on an incomplete, inadequate or incorrect demonstration of one or more points of review under the REP exercise Evaluation Area Criteria;
- Both classifications require correction by the jurisdiction to which they were assessed; and
- The resolution of both classifications must be tracked by the RAC Chairperson or FEMA Region.

Differences:

- Deficiencies imply that there is a potential for compromising the protection of the public health and safety because the ORO lacks the appropriate response capability. ARCAs do not, by themselves, present that potential.
- Because of their potential impact on the public health and safety, Deficiencies should be corrected within 120 days after the exercise through demonstration of the necessary REP Evaluation Area Criteria under which the Deficiency(ies) was assessed, in a remedial exercise, drill, or other remedial actions, including plan revisions. All remedial actions undertaken to correct the Deficiency(ies) must be evaluated by FEMA. The correction of ARCAs should be verified before or during the next biennial exercise.

FEMA has determined that significant problems identified with the planning elements and corresponding planning standards and Evaluation Area Criteria are likely to result in Deficiencies. Nine planning elements from NUREG-0654, their associated planning standards and the Evaluation Area Criteria under which a Deficiency might be assessed are listed in Table 2 below.

TABLE 2: NUREG-0654 Planning Elements under Which Exercise Deficiencies Might Be Assessed

PLANNING ELEMENTS	PLANNING STANDARDS	EVALUATION AREA(S)
Assignment of Responsibility (Including ORO Control)	A,D	1
Emergency Response Support & Resources	C,H	1
Alert & Notification Methods & Procedures	E	1,5
Emergency Communications	F	1,6
Public Education & Information (Including Areas Related to Emergency Public Information)	G	5
Accident Assessment (Including Field Monitoring & Radiological Assessment)	I	2,4
Protective Response (Including Evacuation & Other Protection Responses & Decision-making)	J	1,2,3,6
Radiological Exposure Control	K	1,2,3,6
Medical & Public Health Support & Services	L,J	6

In making a determination of whether an individual issue should be classified as a Deficiency or an ARCA, the RAC Chairperson must consider the potential impact of the identified issue on the public health and safety.

- If the identified issue could, by itself, have an adverse impact on the public health and safety, the issue should be classified as a Deficiency.
- If the identified issue could NOT, by itself, have an adverse impact on public health and safety, but simply reflects that the demonstration criteria were not met, the issue should be classified as an ARCA.

b. Reclassification of Areas Requiring Corrective Action as Deficiencies

There are two conditions under which an ARCA may be reclassified as a Deficiency:

- When the collective impact of two or more ARCAs on an organization’s emergency functioning precludes adequate protection of the public health and safety.
- For recidivism, when an organization repeatedly demonstrates the inability to correct one or more previously identified ARCAs over a period of two or more biennial exercises.

Multiple exercise issues may be an indication of a more severe problem. If the combined effect of the exercise issues is a determination that “...off-site emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant,” then a single Deficiency should be assessed, rather than multiple ARCAs.

In reviewing the policy on reclassification of an ARCA as a Deficiency for recidivism, FEMA has determined that this condition is generally inappropriate. If the ARCA had no adverse effect on public health and safety the first time it was assessed, it would have no adverse effect the next time. If it did have an adverse effect on public health and safety, it should have been classified as a Deficiency the first time it was assessed.

c. Plan Issues

A Plan Issue is defined as an observed or identified inadequacy in the ORO’s emergency plan or implementing procedures, rather than in the ORO’s performance. Plan Issues may be identified by the evaluator or reviewer, but are classified as such by the RAC Chairperson. However, Plan Issues are not considered to be exercise issues and will not necessarily be included in the exercise report. Plan Issues may be provided to the State(s) for correction via letter from the Regional Director within 90 days of the exercise.

Plan Issues should be corrected through the revision of the appropriate plans or procedures during the next annual plan review and update, submitted for FEMA review and reported in the State’s Annual Letter of Certification.

Although Plan Issues are not, in and of themselves, exercise issues, the following should be considered by the RAC Chairperson:

- Any inadequacy in an ORO’s performance should be assessed as a Deficiency or ARCA, even if it resulted from following an inadequate plan.
- A Deficiency or ARCA cannot be assessed solely because of an inadequacy in a plan. However, the corrective actions to Deficiencies or ARCAs may involve plan corrections.
- If some section of a plan is inadequate, a Plan Issue will be reported to the State for correction, regardless of whether or not the ORO’s performance was adequate.

d. Areas Recommended For Improvement

Under the SERF, Areas Recommended For Improvement (ARFI) may be included in REP Program biennial exercise reports, if the OROs wish, or reported to the ORO(s) in writing. They should be discussed by the RAC Chairperson with the exercise participants during the post-exercise briefing.

4. STANDARDIZED EXERCISE ISSUE NUMBERING

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues among FEMA Regions and site-specific exercise reports within each Region. It also expedites tracking of exercise issues on a nationwide basis.

a. Elements of the Standard Exercise Issue Number

The identifying number for Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

- (1) Plant Site Identifier
 - *A two-digit number, corresponding to the Utility Billable Plant Site Codes. (See Appendix C)*
- (2) Exercise Year
 - *Last two digits of the year the exercise was conducted*
- (3) Evaluation Area Criterion
 - *The letters and numbers corresponding to the Evaluation Area Criterion in the FEMA REP Program Manual.*
- (4) Issue Classification Identifier (D = Deficiency, A-ARCA)
 - *Deficiencies and ARCAs are included in exercise reports. Plan Issues may be reported to the State(s) via letter from the Regional Director; standardized exercise issue numbers are not assigned to Plan Issues.*
- (5) Exercise Issue Identification Number
 - *A separate two (or three) digit indexing number assigned to each issue identified in the exercise.*

The elements of the Standard Exercise Issue Number are illustrated in Figure 1 below.

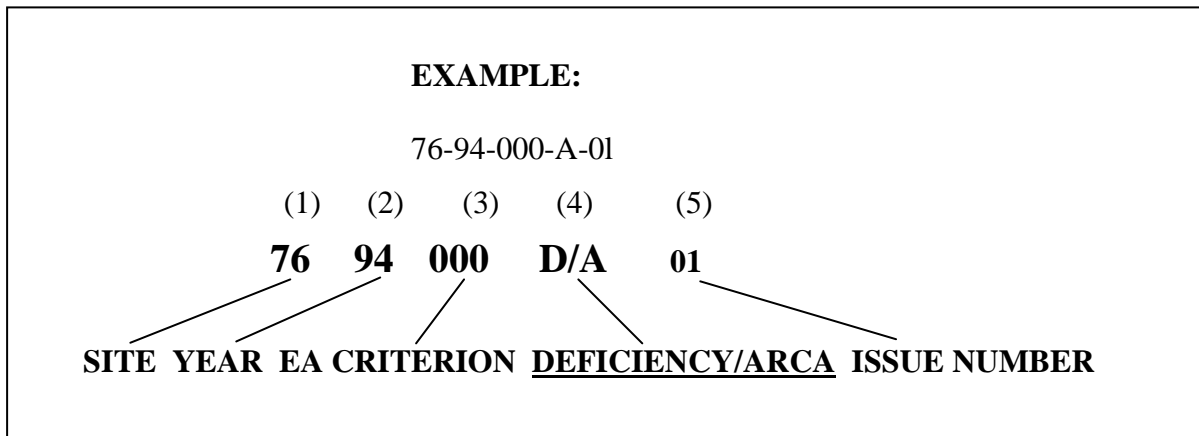


FIGURE 1: Illustration of the Standard Exercise Issue Number

b. Assigning Exercise Issue Numbers

The RAC Chairperson has the responsibility for assigning exercise issue identification numbers to issues to be included in the exercise report. After all issues have been identified and classified, they should be sorted as follows prior to the assignment of issue numbers.

- First, by jurisdiction/functional entity, in the same order as in the matrix contained in Section IV of the exercise report.
- Second, in numerical order of the Evaluation Area Criterion number under which they were assessed under each jurisdiction/functional entity.

Every exercise issue should then be assigned an individual exercise issue identification number in the sequence in which they appear in Section IV of the exercise report. However, Deficiencies should be numbered separately from ARCAs, with issue numbers beginning with “01” in each category.

Each exercise issue should be assigned a unique identification number. While there may be a need to add or delete issues during the post-exercise review process, only the last two digits of the identification numbers will need to be changed when the report is finalized.

c. Method of Issue Number Assignment and Tracking

One suggested way of numbering and tracking exercise issues is the use of the form illustrated in Figure 2 below. This form contains all elements of the standardized exercise issue number, except for the REP Evaluation Area Criterion and issue classification numbers, along with spaces for the jurisdiction/functional entity and a brief issue title. As issues are identified, the pertinent information can be filled in, by hand or electronically, to create a “master list” of all exercise issues identified during the exercise.

EXAMPLE:		
<u>ISSUE NUMBER</u>	<u>JURISDICTION/ FUNCTIONAL ENTITY</u>	<u>BRIEF ISSUE TITLE</u>
76-94-__-__-01	_____	_____
76-94-__-__-02	_____	_____
76-94-__-__-03	_____	_____
(etc.)		

FIGURE 2: Exercise Issue Number Assignment Form

d. Re-numbering Prior Exercise Issues

It is not necessary to renumber issues assessed in previous exercises regardless of whether or not the issues were resolved during or remain unresolved after the current exercise. Only new issues need to be assigned Standard Exercise Issue Numbers.

5. DEFINITION OF EVALUATION AREA CRITERION STATUS

Once all exercise issues are classified, the RAC Chairperson is responsible for describing the status of each Evaluation Area Criterion demonstrated by individual jurisdictions and/or functional entities. There are four terms which are to be used in Section IV, Exercise Evaluation and Results, of the exercise report to describe the status of exercise Evaluation Area Criteria at each jurisdiction and/or functional entity following the current exercise.

- **MET (M)** — The jurisdiction or functional entity demonstrated all criteria for the Evaluation Area Criterion to the level required in the extent-of-play agreement, with **NO** Deficiencies or ARCAs assessed in the current exercise and **NO** Unresolved Prior ARCAs.
- **DEFICIENCY (D)** — The jurisdiction or functional entity demonstrated the Evaluation Area Criterion, **BUT** had one or more **DEFICIENCIES** assessed under the Evaluation Area Criterion.
- **ARCA (A)** — The jurisdiction or functional entity demonstrated the Evaluation Area Criterion, **BUT** had one or more **ARCAs** assessed under the Evaluation Area Criterion in the current exercise and/or one or more **ARCAs** assessed during a previous exercise which were not resolved in the current exercise.

- **NOT DEMONSTRATED (N)** — The jurisdiction or functional entity did not, for a justifiable reason, demonstrate the Evaluation Area Criterion, as required in the extent-of-play agreement or at the two-year or six-year interval required in FEMA-REP Program Manual.

A one-time exemption from demonstration of one or more Evaluation Area Criteria within a biennial exercise cycle may be granted by FEMA for an ORO's response to an actual emergency or participation in an exercise, such as a chemical stockpile emergency preparedness exercise, requiring the demonstration of the same basic demonstration criteria, i.e., emergency response capabilities, as is required under the REP Evaluation Area Criteria. Such an exemption must be applied for by the State and approved by FEMA's Regional Office and Headquarters prior to the exercise.

When a one-time exemption is granted for one or more REP exercise Evaluation Area Criteria, those Evaluation Area Criteria should be listed as **MET** in the exercise report and documentation of the reason the exemption was granted should be included in the extent-of-play agreement.

If the RAC Chairperson determines that the reason for not demonstrating the Evaluation Area Criterion was valid, the status of the Evaluation Area Criterion should be defined as **NOT DEMONSTRATED**. In general, a jurisdiction or functional entity may justify not demonstrating an Evaluation Area Criterion because:

- Exercise participation had to be suspended so the ORO, or some members of its staff, could respond to an actual emergency during the time the exercise was being conducted or
- Some extenuating circumstance, such as a fire or flood at the facility to be demonstrated, prevented its use during the exercise.

In all cases where an Evaluation Area Criterion is defined as **NOT DEMONSTRATED**, the Evaluation Area Criterion will be expected to be demonstrated during the next biennial exercise for the site.

If an Evaluation Area Criterion is not demonstrated by the local jurisdiction or functional entity for such reasons as insufficient personnel or facilities or the outright refusal of the jurisdiction or functional entity to participate in the exercise, with no previously-arranged substitute response capability demonstrated by the State, the RAC Chairperson should carefully review and consider the facts surrounding the jurisdiction or functional entity's failure to demonstrate the Evaluation Area Criterion to see if either of the foregoing justifications for not demonstrating an exercise Evaluation Area Criterion applies. If the RAC Chairperson determines that a failure to demonstrate the exercise Evaluation Area Criterion was not justified, i.e., the ORO or functional entity was not responding to an actual, real life emergency or its facilities were not unavailable due to a fire, flooding, etc., then a Deficiency should be assessed under that Evaluation Area Criterion against the appropriate jurisdiction or functional entity and the Evaluation Area Criterion status should be defined as a **DEFICIENCY**.

6. EXERCISE REPORT PREPARATION

The milestones for preparing the exercise report call for the draft exercise report to be ready for review 30 calendar days after the exercise and the final report to be completed within 90 calendar days after the exercise.

With the implementation of the SERF, much of the planning for preparing and processing the report has already been done.

- The outline of the report, the contents of each section and subsection of the report, and the format in which the report is to be prepared have already been determined.
- FEMA Headquarters has provided the Regions with a computer disk that contains the basic report outline, boilerplate narrative and tabular formats.

Preparation of the exercise report can, and should, begin before the exercise date. The advantages of working ahead include:

- The report preparers are, in effect, extending the amount of time available for report preparation without extending the deadline for completion of the draft and final reports;
- Once much of the site-specific boilerplate is prepared, it will require little or no modification for the next exercise report prepared for that site; and
- Preliminary preparation of some report sections (Evaluation Area Criteria matrix, evaluator/team leader list, etc.) will produce materials that can be included in the evaluators' exercise packets for distribution prior to the exercise.

a. Before the Exercise

Boilerplate material can, and should, be prepared, to the extent possible, for incorporation into the draft exercise report before the exercise. For example, this could include the following report sections.

- Table of Contents
- Introduction
- Table 2 .Summary Results of Exercise Evaluation*

* A preliminary version of the Summary Results of Exercise Evaluation matrix (Table 2, page E.J-3) showing an "X" in the matrix square for each Evaluation Area Criterion scheduled to be demonstrated by the participating jurisdictions/

functional entities. This version of the matrix should be included in the evaluators' pre-exercise packets. Later, after all exercise issues have been identified and classified and the RAC Chairperson has defined the status of each Evaluation Area Criterion for each jurisdiction and functional entity, the matrix can be revised and updated to reflect the demonstration status Met (M), Deficiency (D), ARCA (A), and Not Demonstrated (N) for each Evaluation Area Criterion demonstrated during the exercise by the participating jurisdictions and functional entities.

Also, before the exercise, the Regional staff can, and should, prepare site-specific boilerplate narrative that will not change significantly between exercises (e.g., EPZ description, etc.).

Some non-boilerplate information, such as the exercise Evaluation Area Criteria, extent-of-play agreement and scenario, can be prepared as soon as they are approved by the Region before the exercise. A preliminary listing of exercise evaluators and team leaders can be prepared and revised after the exercise if there are any changes in evaluation assignments.

Preliminary work can be done on some report sections before the exercise and the sections completed after the exercise. For instance, preparation can begin on the report tables, with the addition of appropriate ORO names in column headings and cells.

The data relating to actual exercise performance, exercise issues and recommended corrective actions will have to be added to the report after the exercise. However, there will be more time available for these tasks if the "generic" portions of the report have already been prepared.

ALL data and narrative in the report must be checked after the first rough draft has been completed, to ensure that all report sections and matrix squares have been filled with the correct information, that all spelling and punctuation is correct and that the document follows the SERF. This type of review should be an on-going part of the report preparation process conducted by the FEMA Region whenever a section of the report is completed, prior to the draft exercise report being transmitted to the State(s) and RAC members for review and comment.

b. At the Exercise Site

The RAC Chairperson and the Regional staff are responsible for gathering all the information and data needed for the exercise report. By the date the exercise is conducted, it should be clear to the Regional staff exactly what information and data are needed to complete the exercise report. It should also be clear, even before the first pre-exercise evaluator briefing, how that information and data will be collected at the exercise site.

At the pre-exercise briefing, the specific schedule and process for gathering exercise information and data should be carefully explained to the evaluators.

Section III.K — Post-Exercise Activities

Summary information, such as the exercise timeline and preliminary identification of exercise issues, can be collected from the evaluators, even before the Evaluation Area forms and narratives are prepared. For example:

- The post-exercise evaluators debriefing session, held the day after the exercise, provides a forum for discussing and collecting this information.
- A consolidated timeline can aid in identifying significant differences between OROs or jurisdictions in the time specific exercise actions occurred. Some exercise issues may be identified through the use of this consolidated timeline.

Specific information regarding the demonstration of each Evaluation Area Criterion by each jurisdiction or functional entity will be contained in the Evaluation Area forms and narratives prepared by the evaluators and reviewed by the Regional staff.

- If within the constraints of budget and availability of personnel, the report preparation or clerical staff at the exercise site could type the narratives into pre-formatted computer files.
- Each evaluator's narrative summary should contain a complete description of all issues identified along with the recommended corrective actions.
- All issue descriptions should be accurate, clearly stated and concise. However, they must provide sufficient information regarding the who, what, when, where, how, and why of the issue. Report preparers should not be overly concerned about issue descriptions which are lengthy, if more detailed information is needed to thoroughly and accurately describe the exercise issue. Some details from the evaluator's narrative summary may need to be added to the issue description to provide the OROs with enough information to facilitate an appropriate and timely correction of the issue. This is particularly important in an "issues only" format, since lengthy narrative descriptions of exercise play are not included.
- Pertinent exercise documents, such as sign-in sheets, logs, message forms, Emergency Alert System (EAS) or Emergency Broadcast System (EBS) message scripts, etc., should be attached to the appropriate set of Evaluation Area forms and narratives.

c. After the Exercise

The RAC Chairperson has the responsibility for classifying Deficiencies, ARCAs, and Plan Issues. Once this has been accomplished, the draft exercise report containing the Deficiencies and ARCAs can be finalized.

- Standardized exercise issue numbers should be assigned to the Deficiencies and ARCAs, in accordance with the system outlined in section B.4.

- Based on the identified exercise issues, the RAC Chairperson should prepare the Summary Results of Exercise Evaluation matrix for Section IV of the report, which defines the status of each Evaluation Area Criterion demonstrated under the headings of “Met,” “Deficiency,” “ARCA,” or “Not Demonstrated,” as outlined in section B.5.
- Plan Issues will be provided to the State(s), via a letter from the Regional Director no later than 90 days after the exercise. A copy of this letter should be provided to FEMA Headquarters.

While the issues identified in the exercise are being classified and numbered, the report preparation staff should be completing and checking the first three sections of the report.

Once the exercise issues have been classified and the Section IV matrix has been prepared, the rest of Section IV, Exercise Evaluation and Results, can be drafted with information inserted into the report in accordance with guidance contained in the SERF.

d. General Considerations on Appearance of Exercise Reports

The overall goal of the REP Program is to provide assurance that the OROs can protect the health and safety of the general public in the vicinity of a nuclear power plant and the exercise report provides tangible evidence that this goal has been achieved. The exercise report document may have implications well beyond the scope of the stated purpose of the report since it may be read by anyone, inside or outside of government, in the United States or any country in the world.

Each exercise report should not only present the facts surrounding the particular exercise, but present an accurate, abbreviated representation of the REP Program and the full scope of exercise considerations.

This subsection contains guidance on the general appearance of the exercise report.

1) General Appearance

Because the word processing and printing capabilities may vary among Regions, the report preparation staff should adopt the following guidelines as a minimum.

- Top, right and bottom page margins should be between 0.75” and 1 .00” with the left margin between 1.00” and 1.50” to allow for binding.
- Generally, a serif font such as the Times New Roman font used in the boilerplate material provided by FEMA Headquarters should be used throughout the exercise report, with text printed at 12 characters per inch, fixed spacing, or at 12-point proportional spacing. Use of a sans-serif font may be necessary for ease of readability in tables, figures, etc., especially when the font size must be reduced.

Section III.K — Post-Exercise Activities

- Section and subsection headings should be in a larger-size font than the body of the text and should be printed in boldface type.
- To enhance readability, the report text should be justified to the left margin of the page, with appropriate indentations, rather than fully justified between the left and right margins.
- All pages of the report, including appendices, should be numbered sequentially, front to back, starting immediately after the table of contents of the report (centered, at bottom of page).
- Pages of the table of contents of the report should be numbered in small roman numerals.
- Page numbers should be added manually on report appendix pages that are produced by photocopying.

2) Grammar, Spelling, Capitalization, and Punctuation

Narrative text in the reports should be written in complete sentences. Most standard English spelling, grammar, capitalization and punctuation rules apply. (“Federal” used as an adjective and “State” used as either a noun or adjective are capitalized.)

Sentence length should be no longer than necessary to convey the writer’s meaning. Avoid complex sentence structure to reduce the possibility of misunderstanding of the meaning and improve report readability.

A physical check of spelling, grammar, capitalization and punctuation should be made, in addition to any spell-checking or grammar-checking computer programs, to ensure accuracy and consistency among all sections of the report.

3) Outline Layout — Indentations

All text in the first three sections of the exercise report should be presented in the same manner as the conventional English outline form, with subordinate sections indented and subdivisions labeled alternately with letters and numbers, as illustrated in Figure 3 below.

It is not necessary to indent the first line of each paragraph, as would be done in standard English writing.

A uniform system is used to number the names of jurisdictions and functional entities. This numbering system should be reflected accurately in the table of contents of the report.

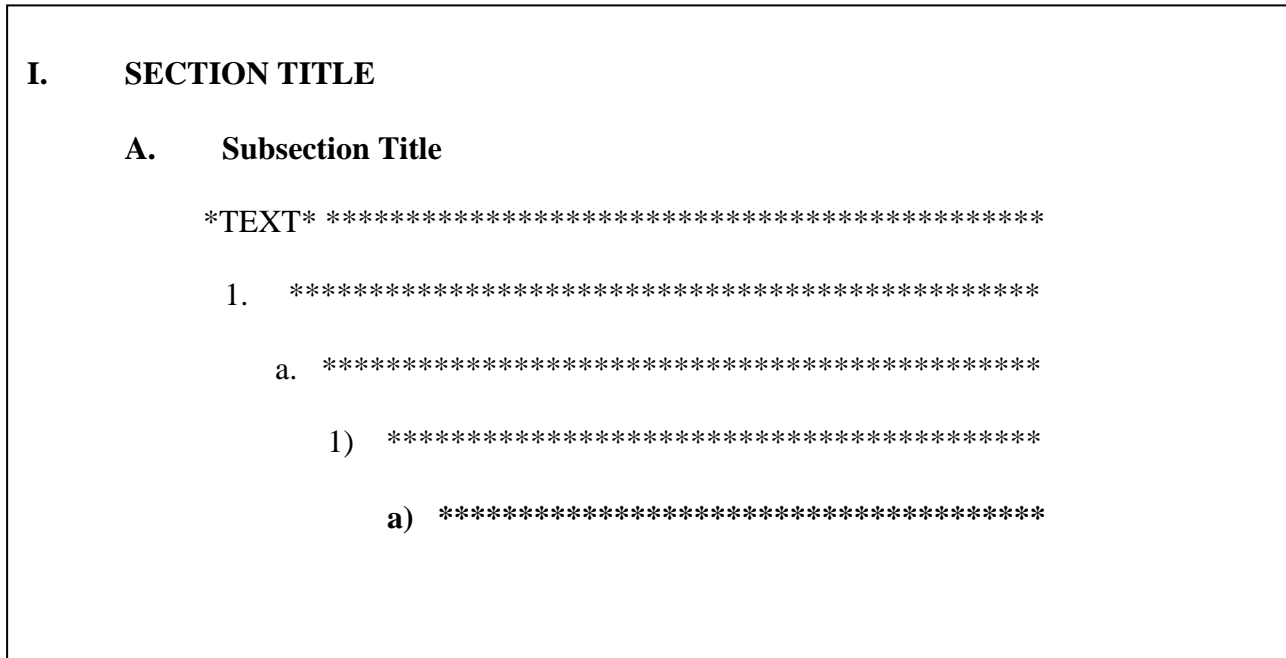


FIGURE 3: Illustration of Outline Layout — Indentations

4) Use of Acronyms and Abbreviations

As in almost any government or private sector technical program, acronyms and abbreviations are an integral part of the REP Program. Most government documents, including the final exercise report, include a list of acronyms and abbreviations, either at the beginning of or as an appendix to the document, to spell out myriad representations for programs, organizations, etc.

Only those acronyms and abbreviations that are actually used in the exercise report should be included in the list of acronyms and abbreviations, which will be located in the first appendix to the report. The following rules should be observed regarding the use of acronyms and abbreviations:

- The first mention in the report of organizations, agencies or terms should be spelled out, with the acronym or abbreviation in parentheses after the spelled name. Thereafter, the acronym or abbreviation should be used.
- Acronyms should not be shown and used for organizational terms that are used only once or just a few times in the report. Such organizational titles and terms should be spelled out in full if they are used infrequently.

The report writer should be sensitive to the uninitiated reader who may not be familiar with the many acronyms that those on the “inside” of the REP Program take for granted as a part of everyday language. Thus, the foregoing rules should be adhered to consistently.

5) Use and Numbering of Tables and Figures

There are two tables which are necessary in exercise reports prepared under the SERF: (1) Exercise Timeline, and (2) Summary Results of Exercise Evaluation. If the Region determines that figures or additional tables are necessary in a specific report, the following guidance will be followed:

- Figures and tables will be numbered sequentially from the beginning to the end of the report;
- A separate list of figures and list of tables will be included at the end of the exercise report's table of contents; and
- Care will be taken to ensure that all figures and tables are numbered correctly, that the numbers are properly referenced in narrative text, and that the actual numbers match those in the lists at the end of the table of contents.

7. EXERCISE REPORT REVIEW

From the moment the exercise is terminated to the day that the final exercise report is issued, some portion of the data or the report preparation process will be under review. Comments will be made on revisions for content, accuracy, clarity, and/or style. Discussions between the RAC Chairperson and individual commenters will undoubtedly be necessary to clarify some of those comments.

All reviews and comments or suggestions, at whatever level, should be aimed at ensuring (1) the accuracy and overall quality of the final exercise report, (2) consistent application of established REP policies and guidance in evaluating the performance of all exercise participants, and (3) identification and proper classification of Deficiencies and ARCAs.

In order to produce a professional quality exercise report, which is both accurate and on time, the report writers and reviewers must both understand what is expected of them.

The review process actually begins at the exercise site.

- As evaluators complete their Evaluation Area Criterion forms, narratives, and identify issues, FEMA reviewers should check them carefully to ensure that the documents are complete and accurate, that all exercise issues and recommended corrective actions are correctly identified and classified, prior ARCAs are properly addressed, and that all pertinent exercise documents are attached.
- When the Evaluation Area Criterion forms, narratives, and exercise issues are typed, they should be checked for accuracy. These evaluator-produced materials will be retained in the Regional files as a permanent record of exercise play.

Section III.K — Post-Exercise Activities

As elements of the draft exercise report are being prepared, the Regional staff should continuously perform quality control reviews of their own work and correct errors in grammar, spelling, punctuation, capitalization and report layout, as well as to ensure accuracy and consistency of information among all sections of the report. With constant attention to the assurance of professional quality, the draft report will be completed within the deadline.

The FEMA Region will send the draft exercise report to the State(s) and RAC members for review and comment 30 calendar days after the exercise.

- All reviewers and commenters should concentrate their review on the accuracy of the data and information contained in the draft report, identification and proper classification of exercise issues and overall report quality.
- Reviewers at all levels should not hesitate to contact the RAC Chairperson or report preparation staff to clarify any items that are not clear or considered correct.

It is important that the Region receive of all comments on the draft exercise report no later than 60 calendar days after the exercise. To facilitate the Region's (1) consideration and incorporation, as appropriate, of the comments and Schedule of Corrective Actions received and (2) retention of the comments in the Regional files, all comments will be provided to the RAC Chairperson in writing via letter and/or markup of the draft exercise report. Because of the pressure of the milestone deadlines, it will be difficult to incorporate comments not received within that time frame into the final report. All comments received will be considered and the RAC Chairperson will contact any reviewer necessary to discuss comments, if there is any question about incorporating those comments.

At this point, the report preparation staff incorporates those comments and suggestions approved by the RAC Chairperson into the draft report to produce the final report. Again, the Regional staff should perform quality control reviews of their own work and correct errors in grammar, spelling, punctuation, capitalization and report layout, as well as to ensure the accuracy and consistency of information among all sections of the report.

Once the final report is prepared, the Regional staff should perform a final review of the entire document to identify any detail that is not correct in content or form.

The FEMA Regional Director will transmit the final exercise report directly to the NRC's cognizant Regional Office with copies to the NRC's Office of Nuclear Reactor Regulation in Washington, DC; FEMA Headquarters, Office of National Preparedness, Technical Services Division, REP Branch; State(s); and RAC members no later than 90 calendar days after the exercise.

8. FEMA HEADQUARTERS' ASSISTANCE

Whenever possible, within the constraints of budget and availability of personnel, a representative of FEMA Headquarters will be present at the exercise site.

This individual, if present, will be available for consultation to the RAC Chairperson and other exercise support personnel on matters pertaining to data gathering, issues classification, and report preparation.

This individual can also serve as a liaison between the FEMA Region and FEMA Headquarters, Office of National Preparedness, Technical Services Division, REP Branch, on any matter involving the exercise or the preparation of the exercise report.

Section III.K — Post-Exercise Activities

APPENDIX A:

ABBREVIATIONS AND ACRONYMS USED IN REP

A	Atomic Mass/Ampere/Activity of Isotope
AC	Alternating Current
ACP	Access Control Point
AEC	Atomic Energy Commission
AECB	Atomic Energy and Control Board
AEOD	Analysis and Evaluation of Operation Data
AGL	Above Ground level
ALARA	As Low As Reasonably Achievable
ALC	Annual Letter of Certification
AMA	American Medical Association
AMS	Aerial Measuring System
AMTOR	Amateur Telegraphy Over Radio
A/N	Alert/Notification
ANI	American Nuclear Insurers
ANL	Argonne National Laboratory
ANSI	American National Standards Institute
ANSI	American National Standards Institute
Anti-Cs	Anti-contamination Clothing
APR	Air-purifying Respirator
ARAC	Atmospheric Release Advisory Capability
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARES	Amateur Radio Emergency Services
ARFI	Area Recommended for Improvement
ARM	Aerial Radiological Monitor
ASLB	Atomic Safety and Licensing Board
α	Alpha Particle
β	Beta Particle Radiation
β^+	β^+ particle (positron)
β^-	β^- particle (electron)
Ba	Barium
BEIR	Biological Effects of Ionizing Radiation
Btu	British Thermal Unit
BWR	Boiling Water Reactor
CAP	Civil Air Patrol
$^{\circ}\text{C}$	degrees Celsius
cc	cubic centimeter
CC	Congregate Care
CCA	Comprehensive Cooperative Agreement
CCC	Congregate Care Center

Appendix A

CD	Civil Defense
CDV	Civil Defense Victoreen
CDC	Centers for Disease Control
CDE	Committed Dose Equivalent
CDRG	Catastrophic Disaster Response Group
CEDE	Committed Effective Dose Equivalent
CEM	Certified Emergency Manager
CEMP	Comprehensive Emergency Management Plan
CFA	Cognizant Federal Agency
CFAO	Cognizant Federal Agency Official
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CHEMTREC	Chemical Transportation Emergency Center
Ci	Curie
CNSNS	Commission for Nuclear Safety and Safeguards
COE	Corps of Engineers
CPG	Civil Preparedness Guide
cpm	counts per minute
CRCPD	Conference of Radiation Control Program Directors
CSEPP	Chemical Stockpile Emergency Preparedness Program
Cs	Cesium
Cu	Cubic
DAC	Disaster Application Center
DBA	Design Basis Accident
DECONN	Decontamination
DFO	Disaster Field Office
DHHS	Department of Health and Human Services
DIL	Derived Intervention Level
DNA	Defense Nuclear Agency
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOH	Department of Health
DOL	Department of Labor
DOS	Department of State
DOT	Department of Transportation
DPM	Disintegrations Per Minute
DRD	Direct-Reading Dosimeter
DRL	Derived Response Levels
DRP	Division of Radiation Protection (DOH Division)
DRSS	Division of Radiation Safety and Safeguards
DSO	NRC Director of Site Operations

Appendix A

E 911	Enhanced 9-1-1
EAB	Exclusion Area Boundary
EACT	Emergency Action and Coordination Team
EAL	Emergency Action Level
EAS	Emergency Alert System [formerly Emergency Broadcast System (EBS)]
ECC	Emergency Communications Center
ECCS	Emergency Core Cooling System
ECL	Emergency Classification Level
EDE	Effective Dose Equivalent
EEM	Exercise Evaluation Methodology
EENET	Emergency Educational Network
EICC	Emergency Information Coordination Center (FEMA)
EIS	Emergency Information System
EM	Emergency Management
EMI	Emergency Management Institute (Maryland)
EMPO	Emergency Medical Preparedness Office
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
EO	Emergency Office
E.O.	Executive Order of the President
EOC	Emergency Operations Center (State)
EOF	Emergency Operations Facility (Utility)
EOP	Emergency Operations/Operating Plan or Procedure OR Extent of Play
EOV	Emergency Operations Vehicle
EPA	Environmental Protection Agency
EPD	Electronic Personnel Dosimeter
EPG	Exercise Preparation Guide
EPO	Environmental Protection Officer
EPZ	Emergency Planning Zone
ER	Emergency Room
ERC	Emergency Response Coordinator
ERDA	Energy Research and Development Administration
ERPA	Emergency Response Planning Area
ERPG	Emergency Response Guidelines
ERPS	Effluents Radiation Protection Section
ERT	Emergency Response Team
ERT-A	Emergency Response Team – Advance
ESF	Emergency Support Functions
EST	Emergency Support Team (FEMA)
ETA	Estimated Time of Arrival
ETE	Evacuation Time Estimate
ETS	Evacuation Time Study
EW	Emergency Worker
EWAC	Emergency Worker and Assistance Center
EWCC	Emergency Worker Center
EWMS	Emergency Worker Monitoring and Decontamination Station

Appendix A

°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FCO	Federal Coordinating Officer
FCP	Field/Forward Command Post
FDA	Food and Drug Administration
FECC	Federal Emergency Communications Coordinator
FEMA	Federal Emergency Management Agency
FFE	Federal Field Exercise
FMT	Field Monitoring Team
FNF	Fixed Nuclear Facility(ies)
FOC	Forward Operations Center
FR	Federal Register
FRC	Federal Regional Center/Federal Response Center
FRERP	Federal Radiological Emergency Response Plan
FRMAC	Federal Radiological Monitoring and Assessment Center
FRMAP	Federal Radiological Monitoring and Assistance Plan [replaces the Interagency Radiological Assistance Plan (IRAP)]
FRMT	Field Radiological Monitoring Team
FRP	Federal Response Plan
FRPCC	Federal Radiological Preparedness Coordinating Committee
FRSSB	Facilities Radiological Safety and Safeguards Branch
FSA	Forward Staging Area
ft	foot/feet
ft/min	feet per minute
ft ³ /min	cubic feet per minute
FTC	Field Team Coordinator
FTS	Federal Telecommunications System
FSAR	Final Safety Analysis Report
γ	Gamma Ray (Photon) Radiation
g	gram
GE	General Emergency
gal	Gallon
GCF	Ground Concentration Factor
Ge (Li)	Lithium Drifted Germanium
GIS	Geographic Information System
GM	Guidance Memorandum
G-M	Geiger-Mueller (radiation detector)
GMT	Greenwich Mean Time
GPS	Global Positioning System
GSA	General Services Administration
h	hour
HAZMAT	Hazardous Materials
HEAR	Hospital Emergency Administrative Radio

Appendix A

HEPA	High-efficiency Particulate Air (as in filters)
HF	High Frequency
HHS	Department of Health and Human Services
HOO	NRC Headquarters Operations Officer
H ₂	Hydrogen (molecular)
H ₂ O	Water
HF	Hydrogen fluoride
HP	Health Physicist
HPSI	High Pressure Safety Injection
HPT	Health Physics Technician
HUD	Department of Housing and Urban Development
HQ	Headquarters
I	Iodine/Exposure Intensity
IAEA	International Atomic Energy Agency
ICPAE	Interagency Committee for Public Affairs in Emergencies
ICS	Incident Command System
IDLH	Immediately Dangerous to Life or Health
IEP	Ingestion Exposure Pathway
INEEL	Idaho National Engineering and Environmental Laboratory
INPO	Institute for Nuclear Power Operations
IP	Implementing Procedure
IPZ	Ingestion Pathway Zone
IRAC	Interagency Radiological Assistance Committee
IRAP	Interagency Radiological Assistance Plan (replaced with FRMAP)
IRZ	Immediate Response Zone
JCAH	Joint Commission on Accreditation of Hospitals
JIC	Joint Information Center
JIS	Joint Information System
JNC	Joint News Center
JOC	Joint Operations Center
JPIC	Joint Public Information Center
k	kilo (SI prefix 10 ³)
kg	kilogram
KI	Potassium Iodide
kV	kilovolt
kW	kilowatt
kWh	kilowatt hour
lb	pound
lbf	pound force
LANL	Los Alamos National Laboratory
LAO	Lead Agency Official
Ld	Lethal Dose

Appendix A

LEPC	Local Emergency Planning Committee
LERN	Law Enforcement Radio Net
LFA	Lead Federal Agency
LLNL	Lawrence Livermore National Laboratory
LOA	Letter of Agreement
LOCA	Loss of Coolant Accident
LPN	Licensed Practical Nurse
LPZ	Low Population Zone
LWR	Light Water Reactor
MAC	Monitoring and Analysis Coordinator
MAELU	Mutual Atomic Energy Liability Underwriters
MERRT	Medical Emergency Radiological Response Team
MERS	Mobile Emergency Response Support
MET	Meteorological
mg	milligram
MHz	megahertz
MIC	Media Information Center
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPC	Maximum Permissible Concentration
mph	miles per hour
mR	milliroentgen/millirem
mR/h	milliroentgen per hour
mRem	millirem
MRV	Mobile Response Vehicle
MS-1	Medical Service – 1 (Hospital)
MSHA	Mine Safety and Health Administration
MT	metric ton
MW	megawatt
MWH	megawatt hour
MUDAC	Meteorological and Unified Dose Assessment Center
μ	micro (SI prefix 10 ⁻⁶)
μCi	microcuries
NAAQS	National Ambient Air Quality Standards
NAERG	North American Emergency Response Guidebook
NaI(Tl)	Sodium Iodide Doped with Thallium (scintillator)
NARP	Nuclear Weapon Accident Response Procedures
NASA	National Aeronautics and Space Administration
NAWAS	National Warning System
NCC	National Coordinating Center for Telecommunications
NCP	National Contingency Plan
NCRP	National Council on Radiation Protection and Measurements
NCS	National Communications System
NDA	National Defense Area

Appendix A

NEI	Nuclear Energy Institute
NEMA	National Emergency Management Association (State Directors)
NEPA	National Fire Protection Association
NESP	National Environmental Studies Project (NUMARC)
NETC	National Emergency Training Center (Maryland)
NIFC	National Interagency Fire Center
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards & Technology [formerly National Bureau of Standards (NBS)]
NMMS	Nuclear Materials Safeguards and Security
NOAA	National Oceanic and Atmospheric Administration
NOUE	Notification of Unusual Event
NPP	Nuclear Power Plant
NPS	National Park Service
NRC	U.S. Nuclear Regulatory Commission
NRT	National Response Team
NSA	National Security Area
NTS	Nevada Test Site
NTSB	National Transportation Safety Board
NUMARC	Nuclear Management and Resources Council
NUREG	Nuclear Regulation/NRC Documents Reference
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, <i>Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants</i> , November 1980
NVLAP	National Voluntary Laboratory Accreditation Program
NWS	National Weather Service
OAR	Office of Air and Radiation
OCRWM	Office of Civilian Radioactive Waste Management
OFA	Other Federal Agencies
OEM	Office of Emergency Management
OMB	Office of Management and Budget
ORIA	Office of Radiation and Indoor Air
ORNL	Oak Ridge National Laboratory
ORO	Offsite Response Organization
OSC	Operational Support Center/On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OST	Operation Support Team
PA	Public Address/Public Affairs
PAs	Protective Actions
PAD	Protective Action Decision
PAG	Protective Action Guide
PAO	Public Affairs Officer
PAR	Protective Action Recommendation
PAZ	Protective Action Zone

Appendix A

PEL	Permissible Exposure Limit
PHS	Public Health Service
PIC	Pressurized Ion Chamber
PIO	Public Information Officer
PL	Public Law
POR	Point(s) of Review
PPE	Personal Protective Equipment
ppm	parts per million
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch gage
Pu	Plutonium
PWR	Pressurized Water Reactor
PZ	Precautionary Zone
§	Part
Q	Release Rate of Activity
Q _i	Iotopic Release Rate
Q _T	Total Activity Released
Q _{UF6}	Uranium Hexafluoride Inventory
R	roentgen
R/h	roentgen per hour
Ra	Radium
RAC	Regional Assistance Committee
RAC AC	Regional Assistance Committee Advisory Council
RACES	Radio Amateur Civil Emergency Service
rad	radiation absorbed dose
RADLAB	Radiological Laboratory
RAM	Radioactive Material
RAP	Radiological Assistance Program (DOE)
RASCAL	Radiological Assessment System for Consequence Analysis
RC	Reception Center
RCC	Reception and Congregate Care
RCF	Release Conversion Factor
RCS	Reactor Coolant System
RCT	Response Coordination Team
RD	Regional Director
RDO	Radiological Defense Officer/Regional Duty Officer
REA	Radioactive Emergency Area
REDAM	Radiological Emergency Dose Assessment Model
REL	Recommended Exposure Limit
rem	Roentgen equivalent man/mammal
REP	Radiological Emergency Preparedness
RERO	Radiological Emergency Response Operations
RERP	Radiological Emergency Response Plan

Appendix A

RERT	Radiological Emergency Response Team
RF	Radio Frequency
RG	Review Guide
R/h	roentgens per hour
RM	Radiological Monitor
RMT	Radiological Monitoring Team
RN	Registered Nurse
RO	Radiological Officer
ROC	Regional Operations Center (FEMA)
ROST	Regional Office Support Team
rpm	revolutions per minute
RPT	Radiation Protection Technician
RRAC	Regional Radiological Assistance Committee
RRF	Regional Response Force
RRT	Radiological Response Team/Regional Response Team
RX	Reactor
SAE	Site Area Emergency
SAR	Search and Rescue/Safety Analysis Report
SARA	Superfund Amendments and Reauthorization Act of 1986
SAV	Staff Assistance Visit
SBA	Small Business Administration
SBGTS	Standard Gas Treatment System
SCBA	Self-contained Underwater Breathing Apparatus
SCO	State Coordinating Officer
SEOC	State Emergency Operations Center
SERF	Standard Exercise Report Format
SFO	Senior Federal Official/Senior FEMA Official
SGTR	Steam Generator Tube Rupture
SLO	State Liaison Officer
SLPD	State and Local Preparedness Division
SME	Subject Matter Expert
SOP	Standard Operating Procedure
Sr	Strontium
SRD	Self-Reading Dosimeter
SRF	Service of Agency Response Force
SRSC	Strategic Review Steering Committee
SRV	Safety Relief Value
SSE	Safe Shutdown Earthquake
ST-DOSE	Source Term to Dose
TBA	Thyroid Blocking Agent (see KI)
TCP	Traffic Control Point
TDD	Telecommunications Device for the Deaf
TEDE	Total Effective Dose Equivalent
TH	Technological Hazards

Appendix A

TL	Team Leader
TLD	Thermoluminescent Dosimeter
TMI	Three Mile Island (Nuclear Power Plant)
TSC	Technical Support Center
TSP	Total Suspended Particulates
TTC	Technical Training Center
U	Uranium
UCi	microcurie
UF ₆	Uranium Hexafluoride
UHF	Ultra High Frequency
UO ₂ F ₂	Uranyl Fluoride
USC	United States Code
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
UTC	Universal Time Coordinated
V	volt
VA	Veterans Administration
VFD	Volunteer Fire Department
VFR	Visual Flight Rules
VHF	Very High Frequency
W	watt
WB	Whole Body
WP	Warning Point
Wt	Weight
yd	yard
yr	year
Z	Atomic number
Z	Zulu (UTC)
Zr	Zirconium

APPENDIX B:

GLOSSARY OF REP TERMS

Absorbed dose: when ionizing radiation passes through living tissue, some of its energy is imparted to the tissue. The amount of ionizing radiation absorbed per unit mass of the irradiated tissue is called the absorbed dose, and is measured in rads and rems.

Access control: all activities accomplished for the purpose of controlling entry or re-entry into an area that has either been evacuated or is under a sheltering protective action decision, because of radiological contamination to minimize the radiation exposure of individuals. This function is needed to prevent the general public from entering restricted areas (sheltered and/or evacuated) and permitting only emergency workers with essential missions and limited members of the general public to enter.

Accident assessment: the evaluation of the actual and potential consequences of a radiological incident.

Accident Response Group (ARG): the Department of Energy response group. A team of scientists, engineers, and technicians that is trained, organized, and equipped to respond to a nuclear weapons accident/incident.

Action levels: thresholds for contamination levels that trigger the need for decontamination established in the plans.

Activated: an Emergency Operations Center is considered Activated as soon as notification of an incident is received and the Director/Commissioner/EOC Representative makes the determination to activate the facility. The facility is not considered Operational until it is ready to carry out full emergency operations with key decision makers in place.

Activation of Personnel: the process by which emergency response personnel are notified of an emergency situation, and requested to report for duty.

Acute exposure: an exposure to radiation, which occurs over a short period of time, usually in less than an hour.

Adequate: as used in reviews of radiological emergency response plans and procedures, adequate means that the plan contents are consistent and in full compliance with the plan requirements delineated in the NUREG-0654 evaluation criteria or alternative approaches approved by FEMA.

Aerial Measuring System (AMS): DOE asset consisting of an integrated remote-sensing capability for rapidly determining radiological and ecological conditions of large areas of the environment. In conjunction with modern laboratory and assessment techniques, state-of-the-art airborne equipment is used for extremely low-level gamma radiation detection, high-altitude photography, airborne gas and particulate sampling, and multi-spectral photography and scanning.

Agreement State: a State that has entered into an agreement under the atomic Energy Act of 1954, as amended, in which NRC has relinquished to such States the majority of its regulatory authority over source, by-product, and special nuclear material in quantities not sufficient to form a critical mass.

Airborne radioactivity: any radioactive material dispersed in the air in the form of dusts, fumes, mists, vapors, or gases.

Air sampler: a device used to collect a sample of radioactive particulates suspended in the air.

ALARA: acronym meaning “as low as reasonably achievable.”

Alerting of personnel: transmission of a signal or message that places personnel on notice that a situation has developed that may require that they report for emergency duty.

Alerting the public: activating an attention-getting warning signal through such means as sirens, tone alert radios, route alerting, and speakers on cars, helicopters, and boats.

Alert system: the hardware system(s) used to get the attention of the public within the plume EPZ. Examples of an Alert system are: sirens; tone activated radios; and vehicles (including boats and airplanes) that utilize loud speakers/sirens, etc., to perform public alerting.

Alpha particle: a positively charged particle ejected spontaneously from the nuclei of some radioactive elements. It is identical to a helium nucleus that has a mass number of 4 and an electrostatic charge of plus 2. It has low-penetrating power and short range. The most energetic alpha particle will generally fail to penetrate the skin. Alpha is hazardous when an alpha-emitting isotope is introduced into the body. Alpha particles are the least penetrating of the three common types of radiation (alpha, beta, gamma) and can be stopped by a piece of paper (cannot penetrate skin).

Alternate EOC: an EOC outside the EPZ to which an emergency response organization may relocate if their “home EOC” is in the radioactive plume.

Area Recommended For Improvement (ARFI): an aspect of emergency preparedness that could be improved to enhance preparedness but is not required to be corrected (and may be included in an appendix to the exercise report if requested by the State).

Area Requiring Corrective Action (ARCA): an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety. The correction of an ARCA is required by the next scheduled biennial exercise. An ARCA may be reclassified as a Deficiency under two conditions: First, when the collective impact of two or more ARCAs on the functioning of an emergency organization precludes the adequate protection of the public health and safety; and second, when an organization repeatedly demonstrates the inability to correct one or more previously identified ARCA over a period of two or more biennial exercises.

Assessment: the evaluation and interpretation of radiological measurements and other information to provide a basis for decision-making. Assessments can include projections of offsite radiological impact.

Atmospheric Release Advisory Capability (ARAC): DOE asset capable of providing a computer-generated model of the most probable path of the radioactive contamination released at a radiological accident site.

Atom: the smallest particle of an element that cannot be divided or broken up by chemical means. It consists of a central core called the nucleus, which contains protons and neutrons. Electrons revolve in orbits in the region surrounding the nucleus.

Atomic energy: energy released in nuclear reactions. Of particular interest is the energy released when a neutron initiates the breaking up or fissioning of an atom's nucleus into smaller pieces (fission), or when two nuclei are joined together under millions of degrees of heat (fusion). It is more correctly called "nuclear energy."

Background radiation: the level of naturally occurring radiation in the environment. Sources include air, water, soil, potassium-40 in the body and cosmic radiation from the sun. The usually quoted individual background radiation exposure in man's natural environment is an average of 125 millirem per year.

Beta particle: A charged particle emitted from a nucleus during radioactive decay, with a mass equal to 1/1827 that of a proton. A negatively charged beta particle is identical to an electron. A positively charged beta particle is called a positron. Large amounts of beta radiation may cause skin burns, and beta emitters are harmful if they enter the body. Most beta particles can be stopped by aluminum foil.

Body burden: the amount of radioactive material present in the body of a human or an animal.

Boiling water reactor (BWR): a nuclear reactor in which water, used both as coolant and moderator, is allowed to boil in the reactor vessel. The resulting steam is used directly to drive a turbine.

Breeder reactor: a nuclear reactor that produces or "breeds" more fissionable material than it consumes. The reactor is built with a core of fissionable plutonium-239, surrounded by a blanket of uranium-238. As the plutonium fissions, neutrons bombard the uranium converting the uranium blanket to more plutonium-239.

Btu: a British thermal unit. The amount of heat required to change the temperature of one pound of water one degree Fahrenheit at sea level.

Buffer zone: an area adjacent to a restricted zone, to which residents may return, but for which protective measures are recommended to minimize exposure to radiation.

Buffer zone (medical facilities): an area (within a hospital or other medical facility) adjacent to the radiological emergency area (restricted zone) for which protective measures are recommended to minimize both exposure to radiation and the spread of radiological contamination to radiological clean areas of the facility.

Calibration: the check or correction of the accuracy of a measuring instrument to ensure proper operational characteristics.

Cask: a heavily shielded container used to store and/or ship radioactive materials. Lead and steel are common materials used in the manufacture of casks.

Chain-of-custody form: the documentation of the transfer of samples from one organization and individual to another with respect to the name of the organization and individual and dates of acceptance and/or transfer of samples.

Chain reaction: a fission chain reaction occurs when a fissionable nucleus absorbs a neutron and fissions, releasing additional neutrons. These in turn can be absorbed by other fissionable nuclei, releasing more neutrons. A chain reaction is achieved when this process becomes self-sustaining.

Check source: a radioisotope with a known, relatively fixed activity level used to determine the responsiveness of survey instruments.

Chronic exposure: exposure to small doses of radiation over an extended period of time.

Cladding: the outer jacket of nuclear fuel elements. It prevents corrosion of the fuel and the release of fission products into the coolant. Aluminum or its alloys, stainless steel and zirconium are common cladding materials.

Cobalt-60: a radioactive isotope formed from natural cobalt-59 by neutron activation in reactors. It is used for medical and industrial applications.

Cognizant Federal Agency (CFA): the Federal agency that owns, authorizes, regulates, or is otherwise deemed responsible for the radiological activity causing the emergency and that has the authority to take action on site.

Cognizant Federal Agency Official (CFAO): lead official designated by the CFA to manage its response at the site of a radiological emergency.

Committed dose: the dose that will be received over a period of 50 years from the ingestion or inhalation of a particular quantity of a radionuclide or a specific mix of radionuclides.

Committed dose equivalent (CDE): the dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following ingestion.

Committed Effective Dose Equivalent (CEDE): the sum of the 50-year committed doses to individual organs from inhalation (or ingestion) of radionuclides, where the individual organ doses have been weighted so that the associated risk of fatal cancer can be added to the risk of fatal cancer from whole-body dose.

Congregate care: the provision of temporary housing and basic necessities for evacuees.

Congregate Care Center (CCC): a facility for temporary housing, care, and feeding of evacuees.

Containment: the provision of a gas-tight shell or other enclosure around a reactor that confines fission products and prevents their release to the environment in an accident.

Contaminated: the adhesion of radioactive particulates on the surface of structures, areas, objects, or personnel.

Contaminated, injured, or exposed individuals: individuals who are: (1) contaminated with radioactive material that cannot be removed by the simple methods described in NUREG-0654, Criteria J.12. and K.5.b., (2) contaminated and otherwise physically injured, or (3) exposed to high levels of radiation.

Contamination: a frequently misunderstood term, contamination refers to radioactive materials not in their intended containers. “Fixed” or “loose” contamination depends on the degree of effort required to unfix or remove the contamination from a surface.

Control cell: exercise personnel who facilitate interfaces with nonparticipating groups, such as State, Tribal, and local government officials and special needs populations.

Control rod: a rod containing a material that readily absorbs neutrons (such as boron). It is used to control the power of a nuclear reactor. By absorbing neutrons, a control rod slows the fission chain reaction by preventing neutrons from causing further fission.

Control room: The area in a nuclear power plant from which most of the plant power production and emergency safety equipment can be operated by remote control.

Controlled area: a defined area in which the occupational exposure of personnel to radiation or radioactive material is under the supervision of an individual in charge of radiation protection.

Controller: the individual directing the flow of scenario events in order to ensure that the conduct of an exercise is conducted in accordance with the agreed-upon exercise objectives and the extent of play.

Controller injects: the introduction of events, data, and information into exercises to drive the demonstration of objectives.

Coolant: a substance, usually water, circulated through a nuclear reactor to remove or transfer heat.

Cool down: The gradual decrease in reactor fuel rod temperature caused by the removal of heat from the reactor coolant system.

Cooling tower: a heat exchanger designed to aid in the cooling of water that was used to cool exhaust steam exiting the turbines of a power plant. Cooling towers transfer exhaust heat into the air instead of into a body of water.

Coordinate: to bring into common action so as not to unnecessarily duplicate or omit important actions (does not involve direction of one agency by another).

Core: the central portion of a nuclear reactor containing the fuel elements, moderator, neutron poisons, and support structures.

Core melt accident: is a reactor accident in which the fuel core melts because of overheating.

Counting: using an instrument to detect individual particles or gamma rays which interact with the detector on the instrument. For example, ambient radiation can be counted, or, alternatively, the radiation emitted by specific samples can be counted in units of cpm or cps.

Critical: able to sustain a nuclear reaction at a constant level.

Critical mass: the mass of fissionable material needed to support a self-sustaining chain reaction.

Criticality: a term used in reactor physics to describe the state when the number of neutrons released by fission is exactly balanced by the neutrons being absorbed (by the fuel and poisons) and escaping the reactor core. A reactor is said to be “critical” when it achieves a self-sustaining nuclear chain reaction.

Cumulative dose (radiation): the total dose resulting from repeated exposure to radiation of the same region, or of the whole body.

Curie (Ci): the basic unit to describe the intensity of radioactivity in a sample of material. One curie is equal to 37 billion disintegrations (nuclear transformations) per second. So, in one curie, 37 billion atoms decay in one second. Several commonly used fractions of the curie include:

Millicurie:	1/1,000 th of a curie, (one-thousandth of a curie, abbreviated mCi)
Microcurie:	1/1,000,000 of a curie, (one-millionth of a curie, abbreviated uCi)
Nanocurie:	1/1,000,000,000 of a curie, (one-billionth of a curie)
Picocurie:	1/1,000,000,000,000 of a curie (one-trillionth of a curie, abbreviated pCi)

Decay (radioactive): the decrease in the radiation intensity of any radioactive material with respect to time.

Decontamination: the process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it.

Decontamination station: a building or location suitably equipped and organized where personnel and material are cleansed of chemical, biological, or radiological contaminants.

Deficiency: an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant.

Depleted uranium: uranium having a percentage of uranium-235 smaller than the 0.7% found in natural uranium. It is obtained from spent (used) fuel elements or as byproduct tails, or residues from uranium isotope separation.

Derived Response Level (DRL): calculated concentration of a particular radionuclide in a particular medium (e.g., food) that will produce a dose equal to a protective action guide.

Direction and control: the management of emergency functions within a particular context (e.g., emergency operations center) through leadership and use of authority.

Disabled individuals: individuals who are hearing-impaired, vision-impaired, non-ambulatory and require support (e.g., crutches), frail, dependent upon life-support systems, or mentally or emotionally impaired.

Dose: the quantity of energy absorbed from ionization per unit mass of tissue. The rad is the unit of absorbed dose.

Dose equivalent: a term used to express the amount of effective radiation when modifying factors have been considered. The product of absorbed dose multiplied by a quality factor multiplied by a distribution factor. It is expressed numerically in rem. The product of the absorbed dose in rad, a quality factor related to the biological effectiveness of the radiation involved and any other modifying factors.

Dose rate: the radiation dose delivered per unit time and measured, for instance rems per hour (as rads per second or rads per hour).

Dose equivalent: the absorbed radiation dose to human beings delivered.

Dose limits for emergency workers: the allowable accumulated dose during the entire period of the emergency. Action to avoid exceeding the limit is taken based on actual measurements of integrated gamma exposure. In contrast, protective action guides are trigger levels of projected dose at which actions are taken to protect the public. These actions are taken prior to the dose being received.

Dosimeter: a portable device such as a thermoluminescent dosimeter (TLD) film badge or direct-reading ionization chamber for measuring and registering the total accumulated exposure to ionizing radiation: Dosimeter Information:

Training dosimeter (requires quarterly leakage tests)	
CD V 138	0–200 mR
CD V 725	0–5 R
CD V 730	0–20 R
CD V 740	0–100 R
CD V 742	0–200 R
DCA 622	0–20 R
DCA 862	0–200 mR

Dosimetry: the measurement of radiation doses. It applies to both the devices used (dosimeters) and to the techniques.

Drill: an event involving organizational responses to a simulated accident to develop, test, and monitor specialized emergency skills that constitute one or more component of an emergency plan and procedure.

Effective Dose Equivalent (EDE): the sum of the products of the dose equivalent to each organ on a weighting factor, where the weighting factor is the ratio of the risk of mortality from delayed health effects arising from irradiation of a particular organ or tissue to the total risk of mortality from delayed health effects when the whole body is irradiated uniformly to the same dose.

Electron: a stable, negatively charged elementary particle of matter. Electrons orbit the positively charged nucleus of the atom.

Element: one of the 103 known chemical substances that cannot be broken down further without changing its chemical properties. Some examples include hydrogen, nitrogen, gold, lead, and uranium.

Emergency: an unexpected event during the operation of a nuclear facility that has a significant effect on the safety of the facility, personnel or the public.

Emergency Action and Coordination Team (EACT): DOE senior management team at Headquarters that coordinates the initial FRMAP response to a radiological emergency.

Emergency Alert System (EAS): a system of radio and television stations responsible for providing official government instructions to the public (formerly the Emergency Broadcast System [EBS]).

Emergency Classification Level(s) (ECL): applies to commercial nuclear power plants only:

1. **Notification of Unusual Event (NOUE):** indicates that unusual events are in process or have occurred that indicate a potential degradation in the level of plant safety. No releases of radioactive material requiring offsite response or monitoring are expected, unless further degradation of safety systems occurs.
2. **Alert (ALERT):** indicates that events are in process or have occurred that involve an actual or potential substantial degradation in the level of plant safety. Releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) protective action guides (PAG) exposure levels.
3. **Site Area Emergency (SAE):** indicates that events are in process or have occurred that involves actual or likely major failures in the plant functions needed for protecting the public. Releases are not expected to exceed EPA PAG exposure levels, except near the site boundary.
4. **General Emergency (GE):** indicates that events are in process or have occurred that involve actual or imminent substantial core degradation or melting, with potential for loss of containment integrity. Releases can reasonably be expected to exceed EPA PAG exposure levels offsite, beyond the immediate site area.

Emergency Information and Coordination Center (EICC): FEMA 24-hour national emergency center from which the EST operates. EICC communications link the SFO, FEMA Regional and Headquarters staff, and other Federal departments and agencies at the national level with one another.

Emergency information: material designed to improve public knowledge or understanding of an emergency.

Emergency instructions: information provided to the general public during an emergency pertaining to protective action recommendations for actions such as evacuation and sheltering.

Emergency Operations Facility (EOF): a facility that is the primary base of emergency operations for the Licensee in a radiological incident. An onsite operations facility provided by the NRC Licensee to facilitate the management of an overall emergency response. Utility and State officials, and a very limited number of Federal personnel may be accommodated.

Emergency Operations Center (EOC): a facility that is the primary base of emergency operations for an ORO in a radiological emergency.

Emergency phase: the initial phase of response actions, during which actions are taken in response to a threat of release or a release in progress.

Emergency Planning Zone (EPZ): areas surrounding a nuclear power reactor site extending out to about 50 miles in which response activities and protective actions would be required to protect the public from the hazards of a nuclear accident. The EPZ for the plume extends out about 10 miles, the radius for the ingestion pathway out to about 50 miles. EPZs for accidents at other types of radiological facilities have not been defined but, for technical reasons, are significantly different from those defined for a nuclear power plant.

Emergency protective actions: protective actions to isolate food to prevent its introduction into commerce and to determine whether condemnation or other disposition is appropriate.

Emergency response planning area: see “Planning area.”

Emergency Response Team (ERT): FEMA team deployed to a radiological emergency scene by the FEMA Director to make an initial assessment of the situation and then provide FEMA’s primary response capability.

Emergency Support Team (EST): FEMA Headquarters’ team that carries out notification, activation, and coordination procedures from the FEMA EICC. The EST is responsible for Federal agency headquarters coordination, staff support of the FEMA Director, and support of the SFO.

Emergency Worker (EW): individual who has an essential mission within the plume exposure pathway emergency planning zone to protect the health and safety of the public who could be exposed to ionizing radiation from the plume or from its deposition. Some examples of emergency workers are: radiation monitoring personnel; traffic control personnel; evacuation vehicle drivers; fire and rescue personnel, including ambulance crews; medical facilities personnel; emergency operations center personnel; personnel carrying out backup alerting procedures; and essential services or utility personnel.

Essential emergency functions: these include communications, direction and control of operations, alert and notification of the public, accident assessment, information for the public and media, radiological monitoring, protective response, and medical and public health support.

Evacuation: a population protection strategy involving orderly movement of people away from an actual or potential hazard, and providing reception centers for those without their own resources for temporary relocation.

Evacuation Time Estimate (ETE): an estimate, contained in emergency plans, of the time that would be required to evacuate general and special populations within the plume pathway emergency planning zone under emergency conditions.

Evaluation module: the tool for evaluators to document exercise performance.

Exception area: an area located approximately 5 to 10 miles from a nuclear power plant and specifically designated in an organization’s plan, for which the 15-minute alerting and notification provision does not apply. For these areas, off-site authorities have approximately 45 minutes to complete alert and notification of the public.

Exclusion Area: the area surrounding a nuclear reactor in which the facility operator has the authority to determine all activities, including exclusion or removal of personnel and property from the area. A specific area off-limits (miles) from a nuclear plant.

Exercise: an event involving organizational responses to a simulated commercial nuclear power plant accident with radiological and other offsite consequences. The purpose of an exercise is to test the integrated capabilities of involved offsite response organizations to implement emergency functions set forth in State, Tribal, and local radiological emergency response plans and procedures.

Exercise issue: a problem in organizational exercise performance that is linked with specific NUREG-0654 standards and applicable evaluation criteria. There are two categories of exercise issues: Deficiencies and Areas Requiring Corrective Actions.

Exposure: the absorption of radiation or ingestion of a radionuclide. The exposure at a given point is a measurement of radiation in relation to its ability to produce ionization. The unit of measurement of the exposure is the roentgen. A measure of radiation dose received by a person, usually broken down and used to refer to whole-body exposure compared with exposure to the hands only.

Exposure rate: the amount of gamma radiation that an individual would receive in one hour as measured in air (typically expressed in units of microrem per hour, millirem per hour or rem per hour).

Extent of Play: the document that describes the agreed-upon level of play vs. simulation at an emergency response exercise. May describe evaluation criteria to be demonstrated, equipment, including vehicles, to be used, personnel to be deployed, facilities to be activated, etc.

Extremities: the hands and forearms and, with restrictions, the head, feet, and ankles. (Permissible radiation exposures in these regions are generally greater than in the whole body because they contain less blood-forming material and have smaller volumes for energy absorption.)

Facility: any building, center, room(s), or mobile unit(s) designed and equipped to support emergency operations.

Fast-Breaking Incident: situation exists, severe core damage, requiring urgent action.

Federal or other support organizations: Federal agencies such as FEMA, the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission, or any other governmental, quasi-governmental, or private organizations (e.g., American Red Cross, Civil Air Patrol, Radio Amateur Civil Emergency Services, cooperating state compact radiological monitoring or sampling personnel, and national or university laboratories) that may provide assistance in radiological emergencies.

Federal Coordinating Officer (FCO): the Federal official appointed by the President upon declaration of a major disaster or emergency under Public Law 93-288 to coordinate the overall Federal response.

Federal Emergency Management Agency (FEMA): this agency establishes Federal policies for and coordinates all civil defense and civil emergency planning, management, mitigation, and assistance functions of executive agencies. FEMA assists local and State agencies in their emergency planning. Its primary role is one of coordinating Federal, State, local, and volunteer response actions.

Federal Radiological Emergency Response Plan (FRERP): a plan for coordinating Federal response to any type of peacetime radiological emergency requiring significant Federal response.

Federal Radiological Monitoring and Assessment Center (FRMAC): center usually located at an airport near the scene of a radiological emergency from with the DOE Offsite Technical Director conducts the FRMAP response. This center need not be located near the onsite or Federal-State operations centers as long as its operations can be coordinated with them.

Federal Radiological Monitoring and Assessment Plan (FRMAP): a plan to provide coordinated radiological monitoring and assessment assistance to the State and local governments in response to radiological emergencies.

Federal Radiological Preparedness Coordinating Committee (FRPCC): established by 44 CFR Part 351, and is the coordination mechanism, at the National Level, to provide technical assistance to State and Local Governments.

Federal Response Center (FRC): the on-scene focal point established by the Senior FEMA Official, as required, for coordinating the Federal response to an incident. Representatives of other Federal, State, local, and volunteer agencies will be located in the center.

Feed water: water supplied to the reactor pressure vessel (in a BWR) or the steam generator (in a PWR) that removes heat from the reactor fuel rods by boiling and becoming steam. The steam becomes the driving force for the plant turbine generator.

Field Command Post (FCP): a center, either mobile or fixed, set up in a location convenient to the accident site, to facilitate emergency response, especially, for example, accident assessment activities such as direction of the field monitoring teams.

Field Team Coordinator (FTC): the individual who manages the functions of field teams and coordinates data with the dose assessment group located in emergency operation centers and facilities.

Fission: the splitting of an atomic nucleus into two approximately equal parts accompanied by the release of large amounts of energy and one or more neutrons.

Fission gases: those fission products that exist in the gaseous state. Primarily the noble gases (krypton, xenon, radon, etc.).

Film badge: a photographic film packet to be carried by personnel, usually in the form of a badge, used for measuring and permanently recording gamma ray dosage.

Fixed Nuclear Facilities (FNF): stationary nuclear installations that use or produce radioactive materials in their normal operations. These facilities include commercial nuclear power plants and other fixed facilities.

Fixed contamination: contamination that remains after loose contamination has been removed by decontamination.

Fixed (reproducible) geometry: a method of measuring levels of radioactivity in samples by using a standard size or volume of samples held at a fixed distance from the measuring instrument.

Food chain: the pathway of any material through the environment to edible plants, animals and ultimately to man.

Forward EOC: if the State EOC is a significant distance from the plant site, the plans may indicate that a near-site or forward EOC will be established at the time of an accident.

Forward Command Post (FCP): in a location near the affected area used to direct the activities of State field personnel performing emergency tasks in support of local government response. At times this location can also be the location for field team coordination.

Forward Operations Post: located in or near the affected area to coordinate the monitoring and sampling activities of the Radiological Emergency Response Teams.

Forward Staging Area (FSA): location near accident site for location of resources for deployment.

Fuel cycle: the series of steps involved in supplying fuel for nuclear power reactors. It includes mining, fabrication of fuel elements and assemblies, their use in a reactor, reprocessing spent fuel and refabrication into new fuel elements.

Fuel element: a rod or other form into which nuclear fuel is fabricated for use in a nuclear reactor.

Full Scale Exercise: a joint exercise in which: (1) State, Tribal, and local government and Licensee emergency personnel and other resources are mobilized in sufficient numbers to adequately demonstrate and test their planning and preparedness capabilities to respond to a simulated radiological emergency; (2) the integrated capabilities of organizations to adequately assess and respond to a radiological accident are demonstrated; and (3) the implementation of the observable elements of State and/or local and Licensee plans and preparedness is tested.

Fusion: the formation of a heavier nucleus from two lighter ones, with the release of energy.

Gamma rays: the most penetrating of the three types of ionizing radiation, gamma rays are electromagnetic radiation—like light, radio waves and microwaves. Similar to, but usually more powerful than X-rays, they have no mass; they are only energy. Gamma rays are best stopped or shielded against by dense material such as concrete or lead.

Geiger-Mueller (G-M) detector: a type of radiation detector that can be used to measure the gamma, or beta plus gamma radiation depending on whether the detector is covered by a beta shield.

Groundshine: is gamma and/or beta radiation from radioactive material deposited on the ground.

Half-life: the time required for the activity of a given radioactive species to decrease to half of its initial value due to radioactive decay. The half-life is a characteristic property of each radioactive species and is independent of its amount or condition. The effective half-life of a given isotope on the body is the time in which the quantity in the body will decrease to half as a result of both radioactive decay and biological elimination. Half-lives vary from millionths of a second to billions of years.

Health physics: the science of recognizing, evaluating and controlling health hazards from ionizing radiation.

Health Physics Technician (HPT): an individual trained in radiation protection.

High exposure rate: rates greater than 2.5 milliroentgens per hour.

High levels of radiation exposure: doses of 100 rem or greater.

High-level waste: no longer useful materials from nuclear operations, which have radioactivity concentrations of hundreds to thousands of curies per gallon or cubic foot.

Host area: a geographical area that is at least 5 miles, and preferably 10 miles, beyond the boundaries of the 10-mile plume pathway EPZ where functions such as congregate care, radiological monitoring, decontamination, and registration are conducted.

Host regional office: the FEMA Regional Office that has program jurisdiction for a site because of the location of a commercial nuclear power plant within its regional borders.

Hot spot: the region in a contaminated area in which the level of radioactive contamination is considerably greater than in neighboring regions.

Implementing procedures (IPs): “operating” procedures used by personnel that provide a detailed description, including checklists, of the operations that are to be conducted by either a specific group of individuals or by a designated position. (Note: used synonymously with “Standard Operating Procedures [SOPs].”)

Inadequate: as used in reviews of radiological emergency response plans or procedures, inadequate means the plan contents do not meet the NUREG-0654 evaluation criteria.

Ingestion Exposure Pathway (IEP): NUREG-0396 estimates that the area in which human and animal ingestion of radioactive contamination is most likely is contained within approximately a 50-mile radius around a nuclear reactor site following a significant accident release. Food,

potable water, or milk products in this pathway may become contaminated as a result of a release of radioactive gas or particulates to the atmosphere or waterways. The duration of such exposures could range in length from hours to months.

Institutionalized individuals: individuals who reside in institutions, such as nursing homes or prisons, who may need to depend on others for assistance with protective actions. Institutionalized individuals may or may not have special needs.

Ingestion Exercise: an exercise involving ingestion exposure pathway protective action decision-making and implementation. A State should fully participate in the ingestion pathway portion of exercises at least once every six years. In States with more than one site, the State should rotate this participation from site to site.

Interagency Radiological Assistance Plan (IRAP): 1965, revised 1975. (See FRMAP)

Internal radiation: the nuclear radiation resulting from radioactive substances in the body. Some examples are iodine-131 found in the thyroid gland, and strontium-90 and plutonium-239 found in bone.

Iodine: only one stable isotope exists, the rest are radioactive and artificially created. The most common, iodine-131 and iodine-125, are used for medical treatment of the thyroid gland and in research.

Ion: an atom or molecule with a negative or positive electrical charge.

Ionization: the process of adding or removing electrons from atoms or molecules, thereby creating ions. High temperatures, electrical discharges or nuclear radiation can cause ionization.

Ionizing radiation: any radiation that displaces electrons from atoms or molecules, thereby producing ions. Alpha, beta and gamma radiation are examples. Ionizing radiation may damage skin and tissue.

Irradiation: exposure to radiation.

Isotope: nuclides having the same number of protons in their nuclei and the same atomic number, but differing in the number of neutrons and atomic mass number. Some isotopes of a particular element may be radioactive while the others are not.

Joint Information Center (JIC): a central point of contact for all news media at the scene of the incident. News media representatives are kept informed of activities and events via public information officials from all participating Federal, State, and local agencies, which, ideally, are collocated at the JIC.

Key staff: those emergency personnel, sufficient in numbers and functions, necessary to carry out emergency operations as required by scenario events and as set forth in the plans.

KI (potassium iodide): a prophylactic drug (stable form of iodine) that can be used effectively to block the uptake of radioiodine by the thyroid gland.

Kilo: a prefix that multiplies a basic unit by 1,000. Example: 1 kilometer = 1,000 meters (10^3).

Kilovolt (kv): the unit of electrical potential equal to 1000 volts.

Lead Agency Official (LAO): designated official on scene from each participating Federal agency authorized to direct that agency's response.

Licensed material: source material, special nuclear material, or by-product material received, possessed, used, or transferred under a general or special license issued by the Nuclear Regulatory Commission or a State.

Licensee: the utility or organization that has applied for or has received from the NRC (1) a license to construct or operate a commercial nuclear power plant, (2) a possession-only license for a commercial nuclear power plant, with the exception of licensees that have received an NRC-approved exemption to 10 CFR 50.54(q) requirements, (3) an early site permit for a commercial nuclear power plant, (4) a combined construction permit and operating license for a commercial nuclear power plant, or (5) any other NRC license that is now or may become subject to requirements for offsite radiological emergency planning and preparedness activities.

Licensee offsite response organization: the Licensee's offsite emergency response organization comprised of Licensee, State, Tribal, and local government, volunteer and other support personnel required to implement the Licensee's radiological emergency response plan. Such an organization entity is typically employed for situations where State, Tribal, and local governments do not participate in radiological emergency planning and preparedness.

Limited response: response to a request for radiological assistance that involves limited DOE or other agency resources and does not require the formal field management structure.

Low-level waste: wastes containing types and concentrations of radioactivity that require little or no shielding for personnel exposure.

Maximally exposed individual: a hypothetical individual who receives the greatest possible projected dose in the area of highest radiation levels over a specified period of time.

Measuring: refers to counting to detect radiation levels or determining other parameters, such as the energy of radiation or physical characteristics of samples, such as the volume of an air sample.

Media center: a facility staffed by public information officers from multiple emergency response organizations for the purpose of providing a single designated point of contact with the news media and to facilitate exchange and coordination of information among public information officers from different organizations. This type of facility is also referred to as a Public Information Center, a Joint Information Center, a Public Affairs Center, or an Emergency News Center.

Meteorological Unified Dose Assessment Center (MUDAC): an area within or near the facility which houses the personnel responsible for the coordination of radiological monitoring teams, collection of radiological monitoring data, calculation of dose projections and the recommendation of protective actions for the EPZs.

Microcurie : a one-millionth part of a curie.

milli: A prefix that divides a basic unit by one thousand.

Millicurie: see Curie.

Millirem: a one-thousandth part of a roentgen.

Milliroentgen: see Roentgen.

mR: milliRoentgen (mR) one thousandth of a Roentgen.

mRem/yr: amount of radiation received in 1 year.

Mobile Emergency Response Support (MERS): FEMA's communications capability.

Mobility impaired: those without transportation, including those without their own cars, those who are unable to drive and those who need assistance, any of whom will need transportation assistance to evacuate.

Mobilized organization: an organization that has completed the activation process and is able to carry out the essential emergency functions, as required by scenario events and as set forth in emergency response plans.

Monitoring: the act of detecting the presence of radiation and the measurement of radiation levels, usually with a portable survey instrument.

Monitoring and decontamination facility: a temporary facility established outside the plume emergency planning zone for the purpose of monitoring and decontaminating emergency workers, and their vehicles and equipment used in the plume and/or areas contaminated by the plume.

MS-1 Hospital: hospitals trained and capable of treating members of the general public who may be injured and/or considered to have substantial radiation related injuries, or who may have been exposed to and contaminated by radioactive materials.

Nano: a prefix that divides a basic unit by one billion (10^9).

Nanocurie: one-billionth part of a curie.

Neutron: an uncharged particle found in the nucleus of every atom heavier than hydrogen. Neutrons sustain the fission chain reaction in a reactor.

Appendix B

Noble gases: the chemically inert radioactive gases that are released during an accident at a nuclear power plant.

Non-participating organizations: State, Tribal, and local governments that are not participating in emergency planning and preparedness for accidents at a commercial nuclear power plant.

Notification and mobilization of personnel: the transmission of messages to emergency personnel informing them of an emergency situation and directing them to report for emergency duty at their assigned duty stations.

Notifying the public: distributing an instructional message, either through the Emergency Broadcast System or some other system.

Nuclear Weapon Accident Response Procedures (NARP) Manual: Department of Defense and Defense Nuclear Agency Manual.

Nuclear radiation: the particulate and electromagnetic radiation emitted from atomic nuclei in various nuclear processes. The important nuclear radiation (from the weapons standpoint) is alpha and beta particles, gamma rays and neutrons. All nuclear radiations are ionizing radiations, but the reverse is not true.

Nucleus: the dense, central, positively charged core of an atom. All nuclei contain protons and neutrons except the nucleus of hydrogen, which has a single proton.

Nuclide: a general term referring to all known isotopes, both stable (279) and unstable (about 5,000), of the chemical elements.

Objective: one of the 33 areas of offsite response organization capability which are evaluated during a REP exercise and which are defined in FEMA-REP-14 and FEMA-REP-15.

Off-hours: the hours between 6:00 p.m. and 4:00 a.m. or any weekend hours.

Offsite: that area beyond the boundaries of a nuclear plant.

Offsite Response Organization (ORO): any State, Tribal, and local government, supporting private industry and voluntary organizations and Licensee offsite response organizations that are responsible for carrying out emergency functions during a radiological emergency.

On-scene: the area surrounding a site that is, or potentially could be, impacted by an incident. This area includes both onsite and offsite areas.

Onsite: the area/location of the commercial nuclear plant.

Onsite personnel: Licensee or contract personnel working at commercial nuclear power plants.

Operational: the EOC/EOF/Media Center/Assistance Center/Emergency Worker Center/Laboratories, etc., are considered “Operational” when all key decision makers are at their duty stations and capable of performing all emergency functions assigned to that facility. (See respective plans and procedures for list of key decision makers.)

Operationally mobilized organization: an organization that has completed the activation process required by scenario events and their emergency response plan and procedures. Operational mobilization is achieved when all key personnel are at their duty stations.

Partial exercise: the engagement of State, Tribal, and local government personnel in an exercise sufficient to adequately test facility-based direction and control functions for protective action decision making related to the appropriate establishment of emergency classification levels and communication capabilities among affected State, Tribal, and local governments and the Licensee. During partial participation exercises, it is not necessary to demonstrate field-based function. Partial participation, as defined, typically refers to the limited participation of State governments in an exercise; however, in some cases, this concept can be used to refer to an exercise in which local governments have limited participation. Limited participation of State, Tribal, and local organizations is permitted to provide relief to organizations that have responsibilities for two or more sites.

Particulate radiation: radiation in the form of particles (e.g., neutrons, electrons, alpha and beta particles) as opposed to electromagnetic radiation.

Pico: a prefix that divides a basic unit by one trillion (10^{-12}).

Picocurie: one-trillionth part of a curie.

Plan: an organization’s documented concept of operations and implementing procedures for managing its internal response and coordinating its external response with other organizations to radiological emergencies.

Planning area: a predesignated geographic subdivision of the plume pathway emergency-planning zone. In some plans, it may be referred to as an Emergency Response Planning Area or an equivalent term.

Plume: generally a gaseous atmospheric release from a nuclear power plant, in an accident or emergency, which may contain radioactive noble gases and volatile solids. While emergency plans must recognize the very low probability that particulates could be released in a serious accident, primary emphasis is given to the development of protective actions against the release of noble gases and volatiles such as radioiodines. This cloud is not visible to the eye, but can be measured, or “seen” with radiation measurement equipment.

Plume dose projections: estimates of dosage to the public from exposure to the plume, over a period of time, in the absence of initiating protective actions.

Plume Exposure Pathway: for planning purposes, the area within approximately a 10-mile radius of a nuclear plant site. A term describing the means by which whole body radiation exposures occur as a result of immersion in a plume release. The area in which plume exposures are likely is described in NUREG-0396 as an area extending out approximately 10 miles from the reactor site and forming roughly a “keyhole” shape, with the keyhole oriented downwind. In the EPZ-plume, actions may be required to protect the public from the effects of whole-body external exposure to gamma radiation from the plume and from deposited materials and inhalation exposure from the passing radioactive plume’s released materials. The duration of exposure in this mode could range from hours to days in the case of particulate deposition.

Plutonium (Pu): an artificially produced fissile material. The Pu-239 isotope is used primarily in nuclear weapons.

Pocket dosimeter: a small ionization detection instrument that indicates radiation exposure directly. An auxiliary charging device is usually necessary.

Population dose projection: projection made by a Federal agency under FRMAP pertaining to the levels of radiation to which the population within the EPZ will be exposed.

Portal monitor: a radiation monitor consisting of several radiation detectors arranged in a fixed position within a frame that forms a passageway for individuals being monitored.

Post plume: activities (ingestion, relocation, re-entry, and return) that occur after a plume has been released. These activities can be demonstrated with the plume phase or separately.

Potassium-40: a naturally occurring radioactive isotope of potassium. It is a beta and gamma emitter and has an exceedingly long half-life. The average person receives about 20 millirems a year from the potassium-40 in his/her body.

Potassium iodide (KI): a prophylactic compound commonly referred to as a radioprotective drug, used to block the uptake of radioactive iodine by the thyroid in a human being.

Potential dose: the radiation dose that could result from a particular set of plant conditions that are not based on estimated or measured releases or environmental levels.

Precautionary protective actions: any preventive or emergency protective actions implemented without the verification of radionuclide measurements by field monitoring or laboratory analysis.

Pre-operational exercise: an exercise conducted prior to the issuance of a full-power license of a commercial nuclear power plant by the Nuclear Regulatory Commission.

Pressure vessel: a strong-walled container housing the core of most types of power reactors.

Pressurized water reactor: a power reactor in which heat is transferred from the core to the heat exchanger by water kept under high pressure. The primary system is pressurized to allow the water to reach high temperatures without boiling. Steam is generated in a secondary circuit.

Preventive protective actions: protective actions to prevent or reduce contamination of milk, food, and drinking water. Other preventive protective actions are washing, brushing, scrubbing, or peeling fruits and vegetables to remove surface contamination.

Primary coolant: water used to cool and carry heat away from the core of a pressurized water reactor. Heat is transferred from the primary coolant to a secondary loop using a heat exchanger, producing steam to drive the turbine.

Projected dose: the estimated or calculated amount of radiation dose to an individual from exposure to the plume and/or deposited materials, over a period of time, in the absence of protective action.

Protective Action Decision (PAD): measures taken in anticipation of, or in response to, a release of radioactive material to the environment. The purpose of PAs is to provide dose savings by avoiding or minimizing the radiation exposure received by individuals, thereby minimizing the health risks resulting from radiation exposure. Sheltering and evacuation are the two PAs that are relied upon for limiting the direct exposure of the general public within the plume exposure EPZ. Preventive and emergency PAs are two categories of PAs that will be relied upon for limiting exposure from contaminated food and water in the ingestion exposure EPZ.

Protective Action Guide (PAG): projected dose to an individual in the general population that warrants the implementation of protective action. Specific PAG's (FDA and EPA) have been recommended in terms of the level of projected dose that warrants the implementation of evacuation and sheltering, relocation, and limiting the use of contaminated food, water, or animal feed.

Protective Action Recommendation (PAR): advice to the State on emergency measures it should consider in determining action for the public to take to avoid or reduce their exposure to radiation.

Protective response: implementation of a protective action.

Proton: positively charged particles that, along with neutrons, are the prime components of atomic nuclei. The atomic number of an atom is equal to the number of protons in its nucleus.

Public instruction: instructions (warning messages) that are PARs for the public. Instructions should be given by a public official and delivered directly to the public via the notifications system (i.e., EAS radio). Message content and timeliness are very important. Messages should be repeated by Notification system at least every 15 minutes until updated by public authorities. If applicable, public instructions should be coordinated with other authorities.

Public information: information delivered to the media via press conferences, interviews, technical briefings, printed media releases, and telephonic distribution of printed releases. Information should be current, accurate, and timely. All printed releases should be coordinated with other authorities before distribution to the media. Ideally, information released in news conferences, briefings, and interviews should be coordinated before release. If pre-coordination does not occur, then post-notification of other authorities of critical points discussed in interviews, conferences, etc., should occur.

RAC AC: is the Regional Assistance Committee Advisory Council. Chairpersons from each of the 10 FEMA Regional Radiological Assistance Committees work with FEMA Headquarters staff to ensure continuity throughout the Regions in the administration of the REP program. When the council was chartered in 1997 it was per the Kay C. Goss, Associate Director for Preparedness, Training and Exercises, memorandum dated February 25, 1997, addressed to FEMA Regional Directors. That memorandum stated the following: “As you know, the RAC Chairperson Advisory Committee was established as an outgrowth of the first National Radiological Emergency Preparedness (REP) Conference held in Gettysburg, PA, July 29–August 2, 1996. The committee is a standing Regional committee to discuss mutual program issues of substantive concern and provide consensus recommendation(s) to the PT&E Directorate. As a corollary responsibility, the Committee will provide technical expertise to the Federal Radiological Preparedness Coordinating Committee (FRPCC), as appropriate.”

Rad: acronym for radiation absorbed dose. The basic unit of absorbed dose radiation. One rad represents the absorption of 100 ergs of nuclear (or ionizing) radiation per gram of the absorbing material or tissue.

Radiation Safety Officer: a health physicist or other individual experienced in radiation protection who advises medical facility staff regarding the hazards associated with high levels of radiation.

Radiation sickness: the complex of symptoms characterizing the disease known as radiation injury, resulting from excessive exposure of the whole body (or large part) to ionizing radiation. The earliest of these symptoms are nausea, fatigue, vomiting, and diarrhea, which may be followed by loss of hair (epilation) hemorrhage, inflammation of the mouth and throat, and general loss of energy. In severe cases, where the radiation exposure has been relatively large, death may occur within 2 to 4 weeks. Those who survive 6 weeks after the receipt of a single large dose of radiation may generally be expected to recover.

Probable Early Effects of Acute Radiation

Whole Body Doses	
Acute Doses	Probable Effect
0 to 25 R (Roentgen)	No obvious injury
25 to 50 R	Possible blood changes, but no serious injury
50 to 100 R	Blood-cell changes, some injury, no disability
100 to 200 R	Injury, possible disability
200 to 400 R	Injury and disability certain, death possible
400 R	Fatal to 50%
600 R or more	Fatal

Radioactivity: the spontaneous decay or disintegration of an unstable atomic nucleus, usually accompanied by the emission of ionizing radiation, generally alpha or beta particles, often accompanied by gamma rays from the nuclei of an unstable isotope.

Radioisotope: an unstable isotope of an element that decays or disintegrates spontaneously, emitting radiation. Approximately 5000 natural and artificial radioisotopes have been identified.

Radiological Assistance Program (RAP): a team dispatched to the site of a radiological incident by the DOE Regional Office responding to the incident.

Radiological emergency: a type of radiological incident that poses an actual or potential hazard to public health or safety or loss of property.

Radiological emergency area: an area established either on an ad hoc basis or pre-identified in a medical facility for monitoring, decontamination, and treatment of contaminated injured individuals, and for contamination control.

Radiological Emergency Preparedness (REP) Program: the FEMA program that administers emergency preparedness for all commercial nuclear sites.

Radiological Emergency Response Plan: a detailed plan which coordinates and describes the emergency response organizations, responsibilities, and capabilities of utilities, local or State governments, and private organizations to ensure public health and safety during an emergency situation in which there is a potential for radiological release.

Radiological Emergency Response Team: a team located near the affected area that coordinates all field teams and sampling activities.

Radiological survey: the directed effort to determine the distribution of radiological material and dose rates in an area.

Radiology: that branch of medicine dealing with the diagnostic and therapeutic applications of radiant energy, including x-rays and radioisotopes.

Radionuclide: a radioactive isotope of a particular element.

Reception Center (RC): a pre-designated facility outside the Plume Exposure EPZ (minimum is 15 miles from utility) at which the evacuated public can register; receive radiation monitoring and decontamination; receive assistance in contacting others; receive directions to Congregate Care Centers; reunite with others; and receive general information. It generally refers to a facility where monitoring, decontamination, and registration of evacuees are conducted. (Note: also called a relocation center, registration center.)

Reclassification of Areas Requiring Corrective Action as Deficiencies: an ARCA may be reclassified as a Deficiency under two conditions. First, when the collective impact of two or more ARCAs on the functioning of an emergency organization precludes the adequate protection of the public health and safety; and second, when an organization repeatedly demonstrates the inability to correct one or more previously identified ARCAs over a period of two or more biennial exercises.

Recovery: the process of reducing radiation exposure rates and concentrations of radioactive material in the environment to acceptable levels for return by the general public for unconditional occupancy or use after the emergency phase of a radiological emergency.

Recovery plan: a plan developed by the State to restore the affected area with Federal assistance if needed.

Recovery worker: an individual who is permitted to enter the restricted zone under controlled conditions to perform work or to retrieve valuable property.

Reentry: the provisions for the return of the public after evacuation, when the radiation risk has been reduced to acceptable levels.

Reentry recommendation: advice provided to the State by the CFA in conjunction with the SFO and appropriate Federal departments and agencies concerning State and local government guidance or recommendations that may be issued to the public for returning to an area affected by a radiological emergency.

Regional Office Support Team (ROST): FEMA regional team that supports the ERT. The ROST facilitates deployment of the ERT; interfaces with the EST at FEMA headquarters, with other regional departments or agencies, and with State and local agencies and organizations during deployment; provides regional support during deployment; and assists with recall of the ERT.

Regional (Radiological) Assistance Committee (RAC): a committee of representatives from a number of Federal agencies which have agreed to assist the FEMA Region in providing technical assistance to State, Tribal, and local governments and to evaluate radiological emergency response plans and exercises on the basis of their special authorities, missions, and expertise.

Regional Response Force (RRF): force identified in the Nuclear Accident Response Capabilities Listing (NARCL) (at JNACC) belonging to DOD or DOE installation, facilities, or activities within the US and its territories. The RRF may be tasked with taking emergency response actions necessary to maintain command and control onsite pending arrival of the Service or Agency Response Force (SRF). Function which the RRF may be tasked with, within their capabilities, are: (1) rescue operations; (2) accident site security; (3) firefighting; (4) initial weapon emergency safing; (5) radiation monitoring; (6) establishing command, control and communications; and (7) public affairs activities.

Release: escape of radioactive materials into the environment.

Relocation: the removal or continued exclusion of people (households) from contaminated areas to avoid chronic radiation exposure.

Relocation center: generally refers to a facility where monitoring, decontamination, registration, and congregate care of evacuees are conducted. (Note: also known as Registration Center or Reception Center.)

Appendix B

Rem: acronym for Roentgen equivalent man. The unit of dose of any ionizing radiation that produces the same biological effect as a unit of absorbed dose of ordinary x-rays. A unit of dose for measuring the amount of ionizing radiation energy absorbed in biological tissue.

Millirem: one-thousandth (1/1000) part of a roentgen.

Residual contamination: contamination that remains after steps have been taken to remove it. These steps may consist of nothing more than allowing the contamination to decay naturally.

Responsible offsite response organization (responsible ORO): an organization designated in an emergency response plan as that organization responsible for a specific emergency function.

Responsible school official(s): the school official(s) participating in an exercise or drill, who are responsible for implementing school emergency procedures, according to the plan.

Restricted zone: an area of controlled access from which the population has been evacuated, relocated or sheltered-in-place.

Return: reoccupation of areas cleared for unrestricted residence or use by previously evacuated or relocated populations.

Roentgen (r): a unit of exposure of gamma (or X-ray) radiation in field dosimetry. One roentgen is essentially equal to one rad. A unit for measuring the amount of radiation energy imparted to a volume of air. The roentgen can be used only to measure X-rays or gamma rays.

Roentgen equivalent man/mammal (rem): one rem is the quantity of ionizing radiation of any type which, when absorbed by man or other mammals, produces a physiological effect equivalent to that produced by the absorption of 1 roentgen of X-ray or gamma radiation.

Rumors: information circulated by individuals and organizations during an emergency that may or may not be true. (Usually, rumors originate and are spread on an ad hoc, not official basis.)

Sampling: collecting specimens of materials (e.g., particles or radioiodine in the air, animal feed, vegetation, water, soil, milk, etc.) at field locations.

Scenarios: time-based simulations of emergency events postulated to allow the demonstration of response capabilities.

Schools: include public and private schools, kindergartens, and all licensed day care centers and homes with more than 10 children.

Scram: (Safety Control Rod Axe Man): the sudden shutdown of a nuclear reactor, usually by rapid insertion of the control rods. Emergencies or deviations from normal reactor operation cause the reactor to automatically scram.

Senior FEMA Official (SFO): official appointed by the director of FEMA, or his representative, to direct the FEMA response at the scene of a radiological emergency.

Shelter in place: a protective action which includes going indoors listening to an EAS radio or television station, closing all windows and doors, closing exterior vents, and turning off heating and air conditioning equipment using outside air.

Shield: material used to reduce or stop radiation.

Special facility: includes schools, day care centers, hospitals, nursing homes, certain types of industrial plants that may require a lengthy shutdown period, etc., within the plume EPZ that need to be considered separately from the general population when planning for an incident or accident at a nuclear power plant.

Special nuclear material: by law, includes plutonium, uranium-233, and uranium containing more than the natural concentration of uranium-235.

Special populations: groups and/or individuals with physical or mental handicaps that need assistance when protective actions are implemented.

Spent fuel: nuclear reactor fuel that has been irradiated to the extent that it can no longer effectively sustain a chain reaction.

Standard Operating Procedures (SOP): see “Implementing procedures.”

State Coordinating Officer (SCO): an official designated by the governor of an affected State to work with the Cognizant Federal Agency Official and Senior FEMA Official in coordinating the response efforts of Federal, State, local, volunteer, and private agencies.

Strontium: four naturally stable and 12 unstable isotopes exist. The most common unstable isotope is strontium-90, a product of nuclear fallout with a half-life of 28 years. It is a high-energy beta source and can be used as an energy source for satellites, remote weather stations and navigation buoys.

Substantial: that the final decision as to whether or not a change is substantially negative and agreed upon by the ORO and FEMA Region.

Survey meter: a portable instrument used in radiological monitoring to detect and measure ionizing radiation.

Thermoluminescent dosimeter (TLD): a dosimetry badge used to measure an individual’s level of exposure to ionizing radiation. It is characteristic of thermoluminescent material that radiation produces internal changes that cause the material, when subsequently heated, to give off a measurable amount of light directly proportional to the radiation dose.

Thyroid exposure: exposure of the thyroid gland to radiation from radioactive isotopes of iodine that have been either inhaled or ingested.

Timely: the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.

Total Effective Dose Equivalent (TEDE): the sum of the deep dose equivalent (for external exposures) and for committed effective dose equivalent (for internal exposures).

Traffic control: all activities accomplished for the purpose of facilitating the evacuation of the general public in vehicles along specific routes.

Transient persons: non-residents. Persons who do not permanently reside in the Plume Exposure EPZ, but may be present during an emergency.

Transuranic elements: all elements above uranium on the periodic table — those with an atomic number greater than 92. All transuranics are produced artificially and are radioactive.

Tritium: the one radioactive isotope of hydrogen. A small percentage of natural hydrogen is tritium, but the primary source of tritium is nuclear reactors. It has a half-life of 12 years, but will remain in the body only a few days if taken internally. It is not considered a major health hazard since it is a very weak beta emitter and not harmful unless consumed in very large quantities.

Uranium: there are two primary isotopes: uranium-238, which accounts for 99 percent of all uranium; and uranium-235, the fissionable isotope that sustains the fission reaction in a nuclear reactor.

Vapor: the gaseous form of substances that are normally in liquid or solid form.

Whole-body exposure: an exposure of the body to radiation, in which the entire body rather than an isolated part is irradiated. Where a radioisotope is uniformly distributed throughout the body tissues, rather than being concentrated in certain parts, the irradiation can be considered as a whole-body exposure.

X-ray: a penetrating form of electromagnetic radiation that is used in medical and industrial applications.

APPENDIX C:

RADIOLOGICAL EMERGENCY PREPAREDNESS (REP) PROGRAM POLICY AND GUIDANCE

While some of the material in the documents cited is out of date, the citations are provided for historical and tracking purposes. There also may be some redundancy in this list, as one document may provide more detail than another on a particular subject and, thus, is listed. This list will be updated in future revisions to the REP Program Manual.

I. FEMA Documents

A. REP SERIES

1. "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 1, Washington D.C., November 1980.
2. "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants - Criteria for Utility Offsite Planning and Preparedness, Final Report," U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 1, Supp. 1, Washington D.C., September 1988.
3. "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Criteria for Emergency Planning in an Early Site Permit Application," Draft Report for Comment, U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 1, Supp. 2, Washington D.C., Draft, April 1996.
4. "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants - Criteria for Protective Action Recommended Initiatives for Severe Accidents," Draft Report for Interim Use and Comment, U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 1, Supp. 3, Washington D.C., Draft, July 1996.
5. "Guidance on Offsite Emergency Radiation Measurement Systems, Phase 1 - Airborne Release," FEMA-REP-2, Rev. 2, June 1990.
6. "Guidance for Developing State, Tribal, and Local Radiological Emergency Response Planning and Preparedness for Transportation Accidents," FEMA REP-5, Rev. 2, November 2000.

Appendix C

7. "Exercise Evaluation and Simulation Facility Evacuation Events Models: Part 1 - PREDYN Users Guide," FEMA-REP-6, April 1984.
8. "Exercise Evaluation and Simulation Facility Evacuation Events Model: Part II - Users Manual," FEMA-REP-7, April 1984.
9. "Application of the I-DYNEV System (To Compute Estimates of Evacuation Travel Time at Nuclear Power Stations)," FEMA-REP-8, December 1984.
10. "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," FEMA-REP-10, November 1985.
11. "A Guide to Preparing Public Information Materials and Emergency Alert System Instructions for Radiological Emergencies," FEMA-REP-11, Draft, March 1995. (Incorporated in and superseded by the "REP Program Manual.")
12. "Guidance on Offsite Emergency Radiation Measurement Systems, Phase 2 - The Milk Pathway," FEMA-REP-12, September 1987.
13. "Guidance on Offsite Emergency Radiation Measurement Systems, Phase 3 - Water and Non-Dairy Food Pathway," FEMA-REP-13, May 1990.
14. "Radiological Emergency Preparedness Exercise Manual," FEMA-REP-14, September 1991. (Superseded in part by the "REP Program Manual.")
15. "Radiological Emergency Preparedness Exercise Evaluation Methodology," FEMA-REP-15, September 1991. (Superseded by the "REP Program Manual.")
16. "Statements of Consideration for FEMA-REP-14 and FEMA-REP-15," FEMA-REP-18, January 1992. (Superseded in part by the "REP Program Manual.")

B. ADDITIONAL FEMA REP GUIDANCE

1. Radiological Emergency Preparedness Program, "Standard Exercise Report Format," FEMA, October 1995. (Superseded in part by the "REP Program Manual.")
2. *Guide for All-Hazard Emergency Operations Planning*, Federal Emergency Management Agency, State and Local Guide (SLG) 101, September 1996.
3. "Federal Policy on Distribution of Potassium Iodide Around Nuclear Power Sites for Use as a Thyroidal Blocking Agent," Federal Emergency Management Agency, Federal Register, Volume 50, p. 30,258, July 24, 1985.
4. "Federal Response Plan (FRP)," Federal Emergency Management Agency, FEMA 229, April 1999.

Appendix C

5. "Memorandum of Understanding between Federal Emergency Management Agency and Nuclear Regulatory Commission," 58 Fed. Reg. 47, 996, Sept. 14, 1993. Note: This MOU, which was entered into June 17, 1993, supercedes all previous FEMA/NRC MOUs.
6. "Contamination Monitoring Standard for a Portal Monitor Used for Radiological Emergency Response," Federal Emergency Management Agency, March 1995.
7. "Background Information for the Contamination Monitoring Standard for a Portal Monitor Used for Radiological Emergency Response," Federal Emergency Management Agency, March 1995.
8. "Statements of Consideration for the Contamination Monitoring Standard for a Portal Monitor Used for Radiological Emergency Response," Federal Emergency Management Agency, March 1995.
9. "Federal Radiological Emergency Response Plan (FRERP)," Federal Emergency Management Agency, May 8, 1996 (61 FR 20944).
10. "Evacuation: An Assessment of Planning and Research," RR-9, Federal Emergency Management Agency, November 1987.
11. "Emergency Alert System," CPG 1-40, Federal Emergency Management Agency, *Interim Use*, June 1996.
12. "Emergency Alert System: A Program Guide for State and Local Governments," CPG 1-41, Federal Emergency Management Agency, *Interim Use*, June 1996.
13. "RG REP 01, Rev. 4, REP Emergency Information Materials/Brochures Review Guide," Federal Emergency Management Agency, January 1998.
14. "RG REP 02, Rev. 9, REP Annual Letter of Certification Review Guide (Checklist)," Federal Emergency Management Agency, December 2000.
15. "RG REP 03, REP State and Local Plan Review Guide," Federal Emergency Management Agency, August 1994.
16. "RG REP 04, REP Reception and Care/Host Jurisdiction Plans (Includes Emergency Worker Decontamination) Review Guide," Federal Emergency Management Agency, September 1994.
17. "RG REP 05, Rev. 1, REP Evacuation Time Study Review Guide (Checklist)," Federal Emergency Management Agency, April 1993.
18. "Check List for Review and Evaluation of Emergency Public Information Brochures for Ingestion Pathway Measures," Federal Emergency Management Agency, July 1990.

Appendix C

19. “Radiological Emergency Preparedness: Alert and Notification,” Notice, Federal Register, Wednesday, September 12, 2001, pp. 47546-47548.
20. “Radiological Emergency Preparedness: Exercise Evaluation Methodology;” Notice. Federal Register, Thursday, April 25, 2002, pp.20580-20602.

II. 44 CFR Regulations

1. 44 CFR 350: *Review and Approval of State and Local Radiological Emergency Plans and Preparedness*, Code of Federal Regulations, Title 44, revised as of October 1, 2000.
2. 44 CFR 351: *Radiological Emergency Planning and Preparedness*, Code of Federal Regulations, Title 44, revised as of October 1, 2000. (To be revised after all Strategic Review Initiatives are finalized.)
3. 44 CFR 352: *Commercial Nuclear Power Plants: Emergency Preparedness Planning*, Code of Federal Regulations, Title 44, revised as of October 1, 2000.
4. 44 CFR 353: *Fee for Services in Support, Review and Approval of State and Local Government or Licensee Radiological Emergency Plans and Preparedness*, Code of Federal Regulations, Title 44, revised as of October 1, 2000.
5. 44 CFR 354: *Fee for Services to Support FEMA’s Offsite Radiological Emergency Preparedness Program*, Code of Federal Regulations, Title 44, revised as of October 1, 2000.

III. Other Agency/Guidance Documents

A. NRC

1. “Consideration of Potassium Iodide in Emergency Plans,” Final Rule, U.S. Nuclear Regulatory Commission, Federal Register, Volume 66, No. 13, p. 5427, January 19, 2001.
2. “Emergency Planning and Preparedness for Nuclear Power Reactors,” NRC Regulatory Guide 1.101 Rev.3, August 1992.
3. “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,” NUREG-0396, EPA 520/1-78-016, Nuclear Regulatory Commission and Environment Protection Agency, December 1978.
4. “Criteria for Protective Action Recommendations for General Emergencies,” NRC Information Notice 83-28, May 4, 1983.
5. “Response Technical Manual (RTM-91),” NUREG/BR-0150, Vol. 1, Rev. 1, U.S. Nuclear Regulatory Commission, April 1991.

Appendix C

6. "Response Coordination Manual – 1996," (RCM-96), NUREG/BR-0230, U.S. Nuclear Regulatory Commission, September, 1996.
7. "State of the Art in Evacuation Time Studies for Nuclear Power Plants," NUREG/CR4831, NNL-776, March 1992.
8. "Resources Available for Nuclear Power Plant Emergencies Under the Price-Anderson Act and Robert T. Stafford Disaster Relief and Emergency Assistance Act," NUREG-1457, July 1992.
9. "Functional Criteria for Emergency Response Facilities," NUREG-0737, Supplement 1, January 1993.

B. EPA

1. "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," U.S. Environmental Protection Agency (EPA), EPA 400-R-02-001, May 1992.

C. USDA

D. DHHS/FDA

1. "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies," U.S. Department of Health and Human Services, Food and Drug Administration, Center for Devices and Radiological Health, August 13, 1998 (63 FR 43402).
2. "Guidance – Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies," U.S. Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER), December 11, 2001 (66 FR 238:64046).

E. DOE

F. DOL

1. "Respiratory Protection," Occupational Safety and Health Administration, 29 CFR 1910.134.

G. ARC

1. "Mass Care - Preparedness and Operations, Disaster Services Regulations and Procedures," ARC 3031, American Red Cross (ARC), Washington, DC, April 1987.
2. "Statement of Understanding Between The Federal Emergency Management Agency and The American National Red Cross," October 1, 1997.

H. OTHER

1. "Respiratory Protection - A Manual and Guideline," 2nd edition, Publication #63PC91, American Industrial Hygiene Association (AIHA), Fairfax, VA.
2. "Personal Dosimetry Performance Criteria for Testing," American National Standards Institute, Standard N13.11-1983.
3. "Management of Persons Accidentally Contaminated with Radionuclides," National Council of Radiation Protection, Report No. 65, 1979.
4. "American National Standard for Respiratory Protection," ANSI Z39.2-1992, American National Standards Institute, New York, NY.

IV. FEMA Guidance Memoranda

1. GM IT-1. "A Guide to Documents Related to the REP Program," October 1, 1985.
2. GM 4. "Radio Transmission Frequencies and Coverage," April 1, 1980.
3. GM 5. "Agreements Among Governmental Agencies and Private Parties," Rev. 1, October 19, 1983.
4. GM 8. "Regional Advisory Committee Coordination with Utilities," Rev. 1, October 19, 1983.
5. GM 16. "Standard Regional Reviewing and Reporting Procedures for State and Local Radiological Emergency Response Plans," August 7, 1980.
6. GM 20. "Foreign Language Translation of Public Education Brochures and Safety Messages," Joint FEMA/NRC Issuance.
7. GM 21. "Acceptance Criteria for Evacuation Plans," February 27, 1984.
8. GM 22. "Recordkeeping Requirements for Public Meetings," October 19, 1983.
9. GM 24. "Radiological Emergency Preparedness for Handicapped Persons," April 5, 1984.
10. GM PI-1. "FEMA Action to Pilot Test Guidance on Public Information Materials and Provide Technical Assistance On Its Use," October 2, 1985.
11. GM FR-1. "Federal Response Center Site Selection Criteria for Peacetime Radiological Emergencies," December 3, 1985.
12. GM AN-1. "FEMA Action to Qualify Alert and Notification Systems Against NUREG-0654/FEMA-REP-1 and FEMA-REP-10," April 21, 1987.

13. GM EV-2. "Protective Actions for School Children," November 13, 1986. **Note:** Guidance in FEMA-REP-14 superseded pages 6-13 concerning the following: (1) clarification of guidance related to the demonstration of protective action capabilities for schools in exercises, and (2) modifications to the set of questions as reflected in the Points of Review and Demonstration Criteria in Objective 16 of FEMA-REP-15.
14. GM IN-1. "The Ingestion Exposure Pathway," February 26, 1988. **Note:** Guidance in FEMA-REP-14 and FEMA-REP-15 superseded pages 12-17.
15. GM PR-1. "Policy on NUREG-0654/FEMA-REP-1 and 44 CFR Periodic Requirements," October 1, 1985. **Note:** Guidance in FEMA-REP-14 superseded two parts of the guidance contained in GM PR-1. These two changes were: (1) The provision set forth on page 3 (Section 3) for partial participation in ingestion exercises for States with multiple sites located within their borders has been terminated. Per guidance provided in the Manual, such States would only need to partially participate in ingestion exercises when full participation exercises are conducted in bordering States. (2) During the year in which the full-participation exercise is held at one of the sites, the responsible State and local governments should review their plans and procedures for the other sites within the State to verify their accuracy and completeness. This review should validate the identification of farms, food processors and distributors. This review and any resultant revisions should be made and reported in the Annual Letter of Certification, as described in GM PR-1, as part of their annual review and plan update.
16. GM MS-1. "Medical Services," November 13, 1986. **Note:** Portions of GM MS-1 have been superseded in the following areas: (1) minimum staffing for medical facilities, (2) deferral of radiological monitoring by transportation providers to medical facility staff, and (3) the role of Licensee personnel in supporting State and local government medical services functions.
17. GM RG-2. "Guidance for FEMA Regional Implementation of the FEMA Rule," 44 CFR Part 352, February 8, 1993.

V. FEMA Policy Statements

1. PS-1 "Policy Statement on Respiratory Protection," Federal Emergency Management Agency, November 22, 1985.
2. PS-2 "Policy Statement on Disposal of Waste Water and Contaminated Products from Decontamination Activities," Federal Emergency Management Agency, January 1989.
3. PS-3 "Policy Statement on the Use of NUREG-0654/FEMA-REP-1 and Guidance Memoranda," Federal Emergency Management Agency, February 28, 1989.
4. Presidential Executive Order 13084, *Consultation and Coordination with Tribal Governments*, May 14, 1998.

5. Presidential Executive Order 13007, *Indian Sacred Sites*, May 24, 1996.
6. FEMA, *Final Agency Policy for Government to Government Relations with American Indian and Alaska Native Tribal Governments*, Federal Register, September 28, 1998.
7. Memo from James Witt, FEMA Director, to all FEMA Associate Directors, Administrators, Executive Associate Directors, Regional Directors, and Office Directors, *Strategic Plan for the Implementation of FEMA's Tribal Policy*, December 4, 2000.

VI. Policy and Guidance Clarifications: Memoranda and Letters

1. Memorandum from Richard Krimm to Frank Finch dated 5/17/85 on "Congregate Care Facilities."
2. Memorandum from Richard Krimm to NTH Division Chiefs, FEMA Regional Offices dated 12/24/85 on "Guidance on NUREG-0654/FEMA-REP-1 Evaluation Criterion J.12."
3. Memorandum from Richard Krimm to Glenn Woodard dated 4/22/86 on "Clarification of the 15-Minute Design Objective for Alert and Notification Systems."
4. Memorandum from Richard Krimm to Frank Begley dated 2/2/87 on "24-hour Staffing Capability."
5. Memo from Richard Krimm to Regional Directors dated 2/5/87 on "Annual Letter of Certification (ALC)".
6. Memorandum from Richard Krimm to Frank Begley dated 9/23/87 on "Alternate Emergency Operations Center (EOC)."
7. Memorandum from Richard Krimm to Frank Begley dated 12/9/87 on "Quad Cities Emergency Planning Zone (EPZ) Boundary Determination (Split Jurisdiction)."
8. Memorandum from Richard Krimm to Frank Begley dated 1/5/88 on "Radiological Monitoring."
9. Memorandum from Richard Krimm to NTH Division Chiefs dated 2/9/88 on "Clarification of Selected Provisions of Guidance Memorandum (GM) MS-1, Medical Services."
10. Memorandum from Richard Krimm to Frank Begley dated 2/26/88 on "Annual Letter of Certification."

Appendix C

11. Memorandum from Grant Peterson to Regional Directors dated 3/7/88 on “Guidelines for Regions to Use in Implementing NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 1, with Qualifying Exercises.”
12. Memorandum from Richard Krimm to Frank Begley dated 5/25/88 on “Relocation Centers.”
13. Memo from Krimm to Edward Thomas dated 6/20/88 on “Annual Letter of Certification” (includes criteria and references a checklist).
14. Memorandum from Richard Krimm to Frank Begley dated 9/19/88 on “Medical Services and Radiological Monitoring Guidance.”
15. Memorandum from Craig Wingo to William Fucik dated 9/20/88 on “FEMA Policy Concerning Receiving Schools Around the Perry Island NPS.”
16. Memorandum from Richard Krimm to Frank Begley dated 9/22/88 on “Interpretation of ‘Shall’ and ‘Should’ as Used in NUREG-0654/FEMA-REP-1 and Off-Hours Unannounced Drills/Exercises.”
17. Memorandum from Richard Krimm to Glenn Woodard dated 9/30/88 on “Clarification of Annual Medical Emergency Drill Provisions for States with Separate Sets of Primary and Backup Medical Facilities.”
18. Memorandum from Richard Krimm to Frank Begley dated 12/7/88 on “Landmark Descriptions.”
19. Letter from Grant Peterson to Victor Stello, Jr. dated 3/28/89 on “Use of 20 Percent of the EPZ Population for Planning Purposes for Radiological Monitoring.”
20. Memorandum from Grant Peterson to Paul Giordano dated 12/7/89 on “Guidance on Ingestion Pathway Exercises.”
21. Memorandum from Grant Peterson to Regional Directors dated 1/12/90 on “Distribution and Use of the Generic Ingestion Pathway Brochure, entitled “Radiological Emergency Information”.”
22. Memorandum from Frank Begley to Kenneth V. Miller (Missouri Department of Health) dated 3/23/90 on “Exercise Demonstration of Two Radiological Monitoring Field Teams.”
23. Memorandum from Dennis Kwiatkowski to William Tidball dated 11/2/90 on “Request from the State of New York for Waiver of Self-Reading Dosimetry Requirements for Emergency Workers.”

Appendix C

24. Memo from Richard Krimm to Warren, undated, on “Granting Credit for Objectives 32 and 33.”
25. Memorandum from Dennis Kwiatkowski to Stephen Harrell dated 1/16/92 on “Response to Request From Region VII for Resolution of Radiological Emergency Preparedness (REP) Program Issues, including Radiological Monitoring for 20 Percent of the Population; Ingestion Pathway Exercises; Dosimetry and Protective Clothing; Medical Care of Nursing Home and Medically Dependent Hospital Evacuees; Portal Monitors.”
26. Memorandum from Dennis Kwiatkowski to Walter Pierson dated 3/26/92 on “Response to Region III’s Request for Guidance on Ingestion Pathway Exercise Demonstration.”
27. Memorandum from Dennis Kwiatkowski to Walter Pierson dated 5/15/92 on “Objective 13: Alert, Notification, and Emergency Information - Public Instructions.”
28. Memorandum from Dennis Kwiatkowski to Robert J. Adamcik dated 1/13/93 on “Pennsylvania Emergency Management Agency Request for Clarification of FEMA-REP-14 Dosimetry Requirements Under Objective 5, Emergency Worker Exposure Control.”
29. Memorandum from Craig Wingo to Stephen Harrell dated 3/5/93 on “Response to Request for Policy Clarification on Radiological Emergency Planning for Day Care Centers.”
30. Memorandum from H. Joseph Flynn, (FEMA) Associate General Counsel for Program Law, to Richard W. Krimm dated 4/30/93 on “Legal Opinion on Letters of Agreement.”
31. Memorandum from Margaret Lawless to RAC Chairs dated 6/25/93 on “Guidance on Planning Requirements Whenever Changes are Made to Existing 10-Mile EPZs.” (contains memorandum from Craig Wingo to Stephen Harrell dated 6/24/93 on “Request for Guidance on Areas Beyond the 10 mile EPZ Ring.”)
32. Memo from Richard Krimm to Regional Directors dated 9/14/93 on “Technical Review of REP Exercise Scenarios with attachments: Radiological Emergency Preparedness Exercise Scenario Technical Review Process; and Radiological Emergency Preparedness Exercise Scenario Review Checklist.”
33. Memorandum from Richard Krimm to Regional Directors dated 10/13/93 on “Adequate Demonstration of Objective 16 at Radiological Emergency Preparedness Exercises.”
34. Memo from Dennis Kwiatowski to Regional Directors dated 3/24/94 on “Guidance Memo RG-2.”

Appendix C

35. Memorandum from Delbert Kohl to Charles Biggs dated 3/28/94 on “Clarification of Communication Equipment Needed by Field Monitoring Teams for Radiological Emergency Preparedness.”
36. Memorandum from Joe Flynn to Dennis Kwiatkowski dated 4/6/94 on “Impact of OSHA’s HAZMAT Standard on REP Program.”
37. Memorandum from Dennis Kwiatkowski to Regional Directors, Regions I-X dated 7/25/94, on “Environmental Protection Agency’s (EPA) Manual of Protective Action Guides (PAGs) and Protective Actions for Nuclear Incidents (EPA 400-R-92-001).”
38. Memorandum from Robert Fletcher to Stuart Rifkind dated 11/9/94 on “Clarification on Alert and Notification System-the Order of Sirens and EBS Messages.”
39. Memorandum from Robert Fletcher to Charles Biggs dated 2/23/95 on “Request for Exemption on Back-up Medical Facilities.”
40. Memorandum from Robert Fletcher to Charles Biggs dated 3/9/95 on “EPA Manual of Protective Action Guides and Retrospective Determinations of Total Dose.”
41. Memorandum from Bill Wark to Larry Bailey dated 6/6/95 on “Evaluation of Activities at Designated Radio/Television Stations That Broadcast Emergency Messages.”
42. Memorandum from William Wark to Joseph Dominguez dated 2/21/96 on “Annual Distribution of Emergency Information to the Public.”
43. Memorandum from William Wark to Joseph Dominguez dated 4/12/96 on “Precautionary Evacuation for the Emergency Planning Zone (EPZ) of the Diablo Canyon Site.”
44. Memo from Vern Wingert to Larry Robertson dated 8/21/96 on “Dosimeter Guidance for Emergency Workers.”
45. Memo from Kay C. Goss to FEMA Regional Directors dated 12/23/96 on “Policy on Use of Dosimeters by Bus Drivers.”
46. Letter from Woodie Curtis to Paul Schmidt (Wisconsin Department of Health and Social Services) dated 3/7/97 on “Several Technical Issues.”
47. Memorandum from Kay C. Goss to All Regional Directors dated 6/23/97 on “Monitoring of Radiation Exposure by States.”
48. Memorandum from Vanessa Quinn to Woodie Curtis dated 9/29/98 on “Alternative Approach by State of Michigan for Dose Assessment.”

Appendix C

49. Memorandum from Kay C. Goss to Regional Directors, I-X, dated 2/2/99, on “Guidance for Providing Emergency Information and Instructions to the Public for Radiological Emergencies Using the New Emergency Alert System (EAS)”.
50. Memorandum from Vanessa Quinn to Woodie J. Curtis dated 7/21/2000 on “State of Illinois Determination on KI Inventory Potency.”
51. Memorandum from Vanessa Quinn to All RAC Chairs dated 11/20/2000 on “Food and Drug Administration (FDA) Guidance on Extending the Shelf-life of Potassium Iodide (KI).”