

Lesson Overview

This lesson introduces the regulatory basis, philosophy, and methodology of exercise evaluation and previews your role in the process.

Lesson Objectives

At the completion of this lesson, you will be able to:

- Explain how NUREG-0654 relates to REP plans.
 - Describe the general philosophy governing REP evaluation.
 - Identify the main elements of the evaluation methodology.
 - Describe the overall role of the evaluator.
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Regulatory Basis**Response Planning**

Radiological Emergency Response Plans, developed by State and local governments, specify the actions to be taken during a nuclear plant incident. Offsite response activity during exercises is based on these plans. Each plan specifies what is to be done, how it is to be done, and by whom and when it is to be done

The regulatory basis for these plans is NUREG-0654/FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants. This guidance is the product of the joint FEMA/NRC Steering Committee.

NUREG-0654/FEMA-REP-1 describes planning standards that must be included in State and local plans. Emergency response plans do not have to follow a particular format, but they must contain certain material. Every REP plan must:

- Describe how each planning standard will be met.
- Have a table of contents.
- Define the facilities that will be used in the emergency response.
- Define the areas covered by the plan.
- Have a cross-reference to NUREG-0654/FEMA-REP-1.

The plans are the basis of the response and evaluator's need to be familiar with the plans/procedures for areas they evaluate.

Planning Standards

There are 15 planning standards (A and C through P) that apply to offsite operations. A sixteenth standard (B) applies to onsite response at the plant and is not addressed here. The 15 planning standards can be divided into two types: functional standards and supportive standards. Functional standards are tested during exercises. Supportive standards are not tested during exercises.

Functional Standards

Of the 15 standards, these 12 are functional standards, which are tested during exercises:

- A. Assignment of Responsibility (Organizational Control)
- C. Emergency Response Support and Resources
- D. Emergency Classification System
- E. Notification Methods and Procedures
- F. Emergency Communication
- G. Public Education and Information
- H. Emergency Facilities and Equipment
- I. Accident Assessment
- J. Protective Response
- K. Radiological Exposure Control
- L. Medical and Public Health Support
- M. Recovery and Reentry Planning and Post-Accident Operations

Supportive Standards

The 3 supportive standards, which are not tested during exercises, include:

- N. Exercises and Drills
- O. Radiological Emergency Response Training
- P. Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

The overall standard refers to assignment of responsibility for emergency response, but there are specific requirements within each standard. The plan must specify how it will meet each of the evaluation criteria.

Cross-Reference

Each REP plan must have a cross-reference between NUREG-0654/FEMA-REP-1 and the local plan's content. The cross-reference:

- Lists each planning standard.
- Indicates the page or section in the plan where that standard is addressed.

Exercising Emergency Response Plans

EMA, through the REP program, evaluates exercises to assess the capability of Offsite Response Organizations (OROs) to respond to an emergency involving a commercial nuclear power plant. An **exercise** is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations.

These exercises are conducted in accordance with FEMA regulations, which appear in 44 CFR part 350. Section 350.5(a) specifies that NUREG-0654/FEMA-REP-1 is to be used in reviewing and evaluating State and local government radiological emergency plans and preparedness.

FEMA's Exercise Evaluation Guidance

FEMA's Radiological Emergency Preparedness Exercise Manual (REP-14, dated 9/91) established 34 objectives that interpreted and applied the guidance contained in NUREG-0654.

In April 2002, FEMA revised REP-14 to present a new methodology for evaluating exercises. An interim program manual presenting the new methodology was issued in August 2002. That methodology adopts a new overall philosophy of evaluation and organizes the exercise evaluation into six broad areas.

Evaluation Philosophy

The objective of an emergency response plan is to protect the health and safety of the public and emergency responders. The goal of an exercise is to determine how well the implemented plan achieves that objective.

Exercise evaluation focuses on the big picture—the results: Did the organization accomplish what was intended? Were the health and safety of the public and emergency responders protected?

Looking at the Big Picture

Imagine looking at an impressionistic painting up close. At very close range, you can't identify what's in the painting. But if you step back and look at the painting as a whole, the image comes into better focus. The same is true with exercise evaluation: if you step back and look at the big picture, you'll have a better idea of whether the mission was accomplished.

The Plan Is the Basis

The emergency plan provides a framework to enable local officials to protect the health and safety of the public. Its main purpose is to assemble sufficient expertise, resources, and officials to address the emergency situation.

In an exercise, the plan and procedures are expected to be followed. That is, response activities should be based on emergency plans and procedures and completed as they actually would be in an emergency, unless otherwise indicated in the Extent of Play.

However, not everything in a plan may be applicable for a given scenario. Responders should not be so tied to a plan that they cannot take actions that would better protect the public. In cases like these, the evaluation looks at overall results rather than strict adherence to the plan.

Streamlined Process

This streamlined, outcome-oriented evaluation philosophy is embodied in the form now used to document exercise evaluation.

Evaluators now use a simplified document called the Evaluation Module to evaluate each criterion. This form contains only one question: Was this criterion adequately demonstrated?

Summary

To summarize the evaluation philosophy:

- Response actions are to be based on the emergency plan and procedures.
 - The evaluation focuses on results: Are the health and safety of the public and the responders protected? Did any negative effects or potential effects result from responders' actions or lack of action?
 - Responders have some latitude to use their judgment and depart from the plan when appropriate—as long as the objectives are met and the mission is accomplished.
 - Evaluators focus on whether the criterion was adequately demonstrated.
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Evaluation Methodology

The revision to REP-14 ushered in a new evaluation methodology. In this methodology, exercises are evaluated in six functional areas:

1. **Emergency Operations Management**—Evaluates the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.
2. **Protective Action Decisionmaking**—Assesses the ability to render decisions about what protective actions members of the public and emergency workers need to take in the wake of an incident.
3. **Protective Action Implementation**—Assesses the ability to implement protective actions, including evacuation.
4. **Field Measurement and Analysis**—Assesses the capability to conduct and analyze field radiation measurements, including plume phase and post-plume phase measurements and laboratory operations.
5. **Emergency Notification and Public Information**—Looks at the ability to notify the public of an incident and to effectively communicate protective action decisions.
6. **Support Operations/Facilities**—Assesses the capability to account for, monitor, and decontaminate evacuees, emergency workers, and emergency worker equipment; to provide temporary care of evacuees; and to ensure that capabilities exist for transporting and treating injured individuals who have been exposed to radiation.

Sub-Elements and Criteria

For organizational purposes, each evaluation area is divided into sub-elements. Each sub-element includes one or more criteria, which are the crux of the evaluation. Evaluators are assigned specific criteria to evaluate.

The Evaluation Module

Evaluations are documented on a form called the Evaluation Module. There is one Evaluation Module for each criterion. The Evaluation Module provides the following information to guide the evaluator during the exercise:

- Evaluation Area number and title
- Sub-element number and title
- Criterion number, description, and NUREG-0654 references
- Sub-element intent
- Extent of Play (generic and, if applicable, exercise-specific)

After the exercise, the evaluator records the following information on the Evaluation Module:

- Identifying information (name, site, etc.)
- Response to the question: Was this Criterion adequately demonstrated?
- Narrative of what transpired during the exercise, including prior issues.
- Identification and discussion of potential issues, including condition, possible cause, cross-references (to NUREG-0654, regulation, etc.), effect, and recommendation.

Extent of Play

Each criterion is described by an Extent of Play, which:

- Identifies demonstrations and simulations.
- Indicates what evaluators should look for.
- Specifies acceptable simulation limits.

An Extent of Play is provided with the Evaluation Module, for general reference only. Before the exercise, the Regional Assistance Committee (RAC) chair and the OROs agree upon what the exercise will accomplish, the criteria to be evaluated, and the Extent of Play for each criterion.

Overview: The Role of the Evaluator

Exercise evaluators are the eyes and ears of FEMA. The role of the evaluator is to observe, evaluate, and document what occurs in the assigned area during the exercise. Exercise documentation is important at several levels:

- Evaluation modules are used by the FEMA region to prepare the overall exercise report.
- Exercise reports are provided to the NRC as documentation of exercise findings and remedial actions.
- Exercise reports may be used by FEMA and NRC witnesses during any hearings before the Atomic Safety and Licensing Board.

As an evaluator, your role is key to a successful exercise evaluation.

Phases of Evaluation

The job of an exercise evaluator can be divided into three main phases: before the exercise, during the exercise, and after the exercise.

- **Before the exercise:** Evaluators prepare for the assignment by researching relevant portions of the jurisdiction's plan, the assigned evaluation criteria, and the Extent of Play.
- **During the exercise:** Evaluators observe, evaluate, and document response activities. While observing, they must remain objective and as unobtrusive as possible to avoid interfering in the exercise process.
- **After the exercise:** Evaluators prepare evaluation modules documenting what they have observed. These documents are used in compiling an overall report of the exercise.

Evaluator Job Skills

The main skills you need during the three phases include:

Pre-Exercise	Exercise	Post-Exercise
Reviewing	Observing	Evaluating
Learning	Documenting	Writing
Meeting	Recording	Reporting
Preparing	Interviewing	

To be effective you must apply the needed skills at the appropriate time. Notice that being an evaluator does **NOT** require you to be a policy expert or to be a decisionmaker about issues arising during the exercise.

The Evaluation Team

As an evaluator, you will not be alone. Each evaluator is assigned to a team, and every team has a team leader. The teams together make up the overall evaluation team, which encompasses all of the exercise locations.

You will be assigned an evaluation area and specific criteria to review. Chances are, others will be looking at some of the same criteria as you, and you may need to coordinate your data gathering and evaluation with them.

Assignments are normally made at least 45 days before the exercise and are based on each evaluator's ability. Newer evaluators are usually given less complex roles, while more experienced evaluators usually serve as team leaders or are assigned the more difficult criteria. Team leaders guide their team members in producing an effective evaluation and review their evaluation modules. Everyone assigned is needed. If you are unable to fulfill your assignment, you must promptly notify the appropriate individual so that a replacement can be found.

Exercise Evaluation Activities

An exercise might take place on only one day, but as an evaluator you may need to be on site for up to a week. When you arrive at the site, you will attend a series of meetings to coordinate the exercise activities and complete preparations for carrying out your assignment. After the exercise, there will be debriefings, report writing, and a public meeting.