

REP Exercise Requirements

Requirement for Radiological Emergency Preparedness (REP) Exercises

FEMA and the U.S. Nuclear Regulatory Commission (NRC) cooperate to promote and regulate REP in communities near commercial nuclear power plants. 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.

FEMA is the lead federal agency for providing assistance to state, tribal, and local governments and for review and evaluation of REP plans and exercises.

Congress directed the NRC to establish emergency preparedness as a criterion for licensing commercial nuclear power facilities. The NRC is prohibited 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 the operation of the facility concerned.”*

FEMA has issued regulations outlining the process and standards with which they will evaluate the REP program.

[FEMA Regulation 44 CFR §350](#)

Incorporates the joint FEMA/NRC guidance document, NUREG-0654/FEMA-REP-1.

Each state which has a commercial nuclear power plant within its boundaries shall fully participate in an exercise jointly with the nuclear power plant 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 appropriate local governments.

[FEMA REP Exercise Evaluation](#)

The REP exercise evaluation tests the functional areas described in the FEMA REP planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1. Some evaluation area criteria focus on fundamental radiological emergency response capabilities and should be demonstrated in every exercise. Other evaluation area criteria focus on important emergency preparedness capabilities that should be demonstrated at least once every eight years by each organization with responsibility for them.

[Capability Targets](#)

Capability Targets function as a general organizing principal for exercise demonstration and evaluation purposes. At each physical location (state EOC, county EOC, reception center, etc.) there are numerous criteria selected for evaluation that are associated with a specific capability target. Each capability target may involve the examination of as many as 10 specific items.

For example, when FEMA evaluates Capability Target 1.3: Protective Action Recommendation, criteria D.4, J.7, J.8, J.8.b, J.9, O.1. is evaluated. These criteria may also be selected elsewhere. For instance: Criterion J.8 is also selected for evaluation of Capability Target 1.4 Protective Action Decision for the Plume Phase.

Exercise Scenario

The scenario for a simulated nuclear power plant accident is developed jointly by the state and licensee and includes plant conditions and off-site consequences sufficient to drive activities necessary for the demonstration of the agreed-upon exercise evaluation area criteria. The scenario is submitted to the FEMA Regional Offices for review and includes the following information:

- A chronology of all key events
- A narrative description of exercise events and activities
- Meteorological data and forecasts
- Radiological data; e.g., characteristics of release, projected dose, exposure rates and concentrations in the environment
- Injects that include simulated traffic impediments and interruption of communications
- Simulated calls into the information hotline for identifying and tracking rumors and trends
- Out-of-sequence scenarios for the hospital and ambulance

Plume Phase Exercise

During a plume phase exercise, a simulated accident occurs resulting in the declaration of either a Notification of Unusual Event (NUE) or an Alert ECL. Throughout the course of the exercise, simulated conditions continue to worsen and the ECL escalates to a Site Area Emergency (SAE) and ultimately to a General Emergency (GE).

The state of MN and the risk counties within the 10-mile EPZ are required to demonstrate many tasks, including:

- Setting up and activating their EOCs
- Establishing direction and control of the situation

- Demonstrating functional backup communications
- Demonstrating public messaging and media briefings
- Evacuating school children and special populations (simulated)
- Evacuating the public (simulated)
- Re-routing of traffic around simulated impediments

State-only requirements:

- Staff a public information hotline to track rumors and trends
- Conduct dose assessment and plume modeling
- Use field teams to track the plume

In order to demonstrate many of these tasks, exercise controllers will supply information (a.k.a. injects) about various simulated conditions to different players at the proper time.

Injects may include:

- Information about traffic impediments to require re-routing traffic
- Artificial loss of communications to demonstrate backup capabilities
- Mock media to ask questions during the media briefings
- Release rate and meteorological conditions for plume modeling and dose assessment
- Field team sampling data for plume tracking

Intermediate/Ingestion Phase Exercise

Some evaluation area criteria are required to be demonstrated once in every eight-year cycle. These include, but are not limited to, the following:

- Decision making and implementation of ingestion phase Protective Action Recommendations (PARs)
- Radiological assessment, decision making and implementation of re-entry, relocation and return
- Post-plume field measuring and sampling
- Laboratory operations

Demonstration of these evaluation area criteria requires an extra day where the EOCs in the state and risk counties are active.

There is also participation of some of the counties within the 50-mile Ingestion Planning Zone (IPZ) as well as participation of federal agencies, which may include: FRMAC, USDA, FDA, CDC, FEMA, USDOT.

Additionally, more controller data is required to support this phase of the exercise.

- Injects to drive responses directed toward re-entry, relocation, return, and food protections
- Field team plume deposition data
- Maps that have incorporated field measurement data and radiological doses
- Samples necessary for laboratory analysis

Hostile Action-Based (HAB) Exercise

The state of Minnesota and risk counties have in place a standard set of objectives for the demonstration of a response to a declared radiological emergency at a nuclear generating plant. A HAB exercise requires additional objectives reflecting the unique actions taken in response to a hostile attack. This scenario is used in at least one exercise in the eight-year cycle. The HAB scenario can coincide with either a release or “no release” scenario.

Additional evaluation variables that may differ from a non-HAB exercise may include, but are not limited to, the following:

- Establishment of an incident command post (ICP) and staging area.
- Integration of off-site resources with on-site response.
- Traffic and access control implementation.
- Demonstrating knowledge on the use of dosimetry and KI by emergency responders located at the ICP.
- Decision-making coordinated between the ICP, county EOC and SEOC planning and assessment center (PAC).

Out-of-Sequence Demonstrations

Due to the limited number of available controllers and evaluators and the time constraints placed upon a typical exercise, many criteria are demonstrated out of sequence with the rest of the exercise. These include:

- Emergency Worker Decontamination (EWD) Sites
 - Monitoring and decontamination of Emergency Workers, their vehicles and equipment
 - Field Sample drop off and handling
- Reception Centers
 - Monitoring and decontamination of the general public, their vehicles, and pets
 - Registration of those who evacuated
- Ambulances
 - Transport of a potentially contaminated patient
- Hospitals
 - Treatment of a potentially contaminated patient
- Schools
 - Evacuation to sister schools or shelter in place
- Laboratory demonstrations
 - Receipt and analysis of field samples collected by field teams