

## LESSON OVERVIEW

This lesson provides information on Evaluation Area 3, Protective Action Implementation.

### Lesson Objectives

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

- Identify the six elements to be evaluated under protective action implementation.
- Summarize the criteria used to evaluate protective action implementation.

## OVERVIEW OF EVALUATION AREA 3

EA-3, Protective Action Implementation, includes 6 sub-elements:

- 3.a Implementation of Emergency Worker Exposure Control
- 3.b Implementation of KI Decision
- 3.c Implementation of Protective Actions for Special Populations
- 3.d Implementation of Traffic and Access Control
- 3.e Implementation of Ingestion Pathway Decisions
- 3.f Implementation of Relocation, Re-entry, and Return Decisions

### Evaluation Frequency

The minimum frequency for evaluating these sub-elements is shown below:

Sub-Elements	Every Exercise	Once in 6 Years
3.a Emergency Worker Exposure Control	X	
3.b KI Decision		X*
3.c Protective Actions for Special Populations		X
3.d Traffic and Access Control	X	
3.e Ingestion Pathway Decisions		X
3.f Relocation, Reentry, and Return		X

\* 3.b should be demonstrated in every biennial exercise by some OROs, and at least once every 6 years by every ORO with responsibility for implementing KI decisions.

### 3.a Emergency Worker Exposure Control

Sub-element 3.a, Implementation of Emergency Worker Exposure Control, assesses the ORO's ability to implement protective actions for emergency workers through the provision of dosimetry, maintenance of exposure records, and control of radiation exposures. It includes one criterion:

**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.

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#### Provision of Dosimetry

OROs should demonstrate the capability to provide emergency workers with appropriate dosimetry, including:

- Direct-reading dosimetry (DRD) and permanent record dosimetry (e.g., Thermo-Luminescence Dosimeter (TLD))
- Dosimeter chargers
- Instructions on the use of dosimetry

**Appropriate DRD**, for evaluation purposes, is dosimetry that allows individuals to read two limits contained in the ORO's plans/procedures: (1) administrative reporting limits (pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and (2) maximum exposure limits (for emergency workers involved in life saving activities).

Although ideally every emergency worker should have a DRD, it may not always be strictly necessary. An example is when team members will be close to each other throughout the entire mission and one dosimeter worn by the team leader will be adequate for all team members.

Similarly, emergency workers assigned to low exposure rate areas (e.g., reception centers, counting laboratories, EOCs, and communications centers) may have individual DRDs or they may be monitored by dosimeters strategically placed in the work area.

Even in these situations, each team member must still have their own permanent record dosimetry.

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## What Is Required of the Emergency Worker?

Emergency workers should:

- Have basic knowledge of radiation exposure limits.
- Monitor and record dosimeter readings.
- Manage radiological exposure control.

During a plume phase exercise, they need to demonstrate the procedures for when administrative exposure limits and turn-back values are reached, and report accumulated exposures during the exercise.

If the scenario doesn't require authorizations for additional exposure, knowledge of the procedures will be checked through interviews with the workers. The workers may consult any available resources in responding.

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### 3.b KI DECISION

Sub-element 3.b, Implementation of KI Decision, assesses the ORO's ability to provide radioprotective drugs for emergency workers, institutionalized individuals, and—if in the plan/procedures—the general public for whom immediate evacuation may be infeasible, very difficult, or significantly delayed. This sub-element contains one criterion:

**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.

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### What the Policy Requires

The ORO's provisions for KI distribution should include:

- Availability of adequate quantities
- Storage
- Means of the distribution consistent with the decisions made.

While OROs must be able to provide KI to emergency workers and institutionalized individuals, providing KI to the general public is an ORO option that will be reflected in their plans and procedures. 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.

Other requirements include:

- Disseminating instructions on the use of KI for those advised to take it.
- Maintaining lists of emergency workers and institutionalized individuals who have taken KI.
- Documentation of the date(s) and time(s) individuals were instructed to take KI.
- When the ORO health official recommends use of KI, taking it is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary.

## **Emergency Workers**

Emergency workers should demonstrate the basic knowledge of procedures for the use of KI. Demonstration of this knowledge is required whether or not the scenario actually calls for the use of KI and can be determined through an interview with the evaluator.

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### **3.c SPECIAL POPULATIONS**

Sub-element 3.c, Implementation of Protective Actions for Special Populations, assesses the ORO's ability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. This sub-element includes two criteria:

**Criterion 3.c.1:** Protective action decisions are implemented for special populations other than schools within areas subject to protective actions.

**Criterion 3.c.2:** OROs/School officials implement protective actions for schools.

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#### **3.c.1: Special Populations Other than Schools**

Applicable OROs should demonstrate their ability to alert and notify special populations other than schools, such as:

- Hospitals and nursing homes
- Correctional facilities
- Mobility impaired individuals
- Transportation dependent

This might be done, for example, by providing protective action recommendations (PARs) and emergency information and instructions to these groups.

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#### **Making Contact**

OROs should also demonstrate their ability to provide for the needs of these special populations in accordance with the plan/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.

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**3.c.2: Schools**

School systems/districts (including all public schools, licensed day care centers, and participating private schools) must demonstrate the ability to implement protective actions for students, including developing and providing timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools. Specifically:

- Protective actions need to be demonstrated by at least one school in each affected school system or district.
- School cancellation, early dismissal, and sheltering should be simulated by describing procedures to evaluators.
- For evacuation, activities may either be demonstrated or accomplished through an interview process.

At least one bus driver should be available to demonstrate knowledge of their role. Routes can be run if negotiated and documented in the Extent of Play.

Evaluators should verify communications capabilities between school officials and the buses, if required by the plan/procedures.

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**3.d TRAFFIC AND ACCESS CONTROL**

Sub-element 3.d, Implementation of Traffic and Access Control, assesses the ORO's capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. The focus is on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic. Physical deployment of resources is not required. This sub-element includes two criteria:

**3.d.1:** Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel.

**3.d.2:** Impediments to evacuation are identified and resolved.

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**3.d.1: Provisions for Traffic and Access Control**

The ORO's provisions for traffic and access control should include:

- Selecting, establishing, and staffing appropriate traffic and access control points, consistent with protective action decisions (e.g., evacuating, sheltering, or relocation).
- Setting up traffic and access control in a timely manner. Instructing staff on what to do when changes in evacuation patterns or restricted area boundaries are necessary.

**Job knowledge.** Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This may be done by actual deployment or by interview, in accordance with the Extent of Play agreement. If interviews are conducted, topics such as re-entry criteria, evacuation routes, and the location of reception centers or congregate care centers may be discussed.

**Authority to control access.** If the ORO lacks the authority 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 that do have authority to control access.

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**3.d.2: Impediments to Evacuation**

OROs should demonstrate the capability, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation (e.g., debris, inoperable vehicles).

Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated. However, all contacts—actual or simulated—should be logged.

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**3.e INGESTION PATHWAY**

Sub-element 3.e assesses the ORO's implementation of protective actions, based on criteria recommended by current FDA guidance, for the ingestion pathway zone (IPZ). The IPZ is the area within an approximate 50-mile radius of the nuclear power plant. Sub-element 2.e includes two criteria:

**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.

**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.

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**3.e.1: Information Availability**

To implement protective actions within the IPZ, OROs need access to current information on the locations of:

- Dairy farms
- Meat and poultry producers
- Fisheries
- Fruit and vegetable growers
- Grain producers
- Food processing plants
- Water supply intake points

To meet this criterion, OROs must show that they can obtain and use that information.

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**Use of Federal Resources**

ORO should use Federal resources as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources such as compacts and nuclear insurers if available.

Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise. The evaluator should read the specific Extent of Play for the exercise and document the impact of Federal actions.

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### 3.e.2: Measures and Strategies

OROs should demonstrate measures and strategies to implement IPZ protective actions. This can be done through provision of information, contamination control, and communications and coordination.

- **Information.** The ORO needs to demonstrate that it is ready with protective action information for the general public and for food producers and processors. This can be demonstrated by having pre-distributed public information material in the IPZ or by having the ability to rapidly distribute pre-printed or camera-ready information and instructions to pre-determined individuals and businesses.
- **Contamination control.** OROs should demonstrate their ability to control, restrict, or prevent distribution of contaminated food by commercial sectors.
- **Communication and coordination.** During exercise play, communication and coordination should be evident 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 communications with food producers and processors may be simulated.

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### 3.f RELOCATION, RE-ENTRY, AND RETURN

Sub-Element 3.f, Implementation of Relocation, Re-entry, and Return Decisions, assesses the ORO's ability to put decisions regarding relocation, re-entry, and return into action. This capability is essential for protecting the public from direct long-term exposure to deposited radioactive materials from a severe incident at a commercial nuclear power plant. This sub-element includes one criterion:

**Criterion 3.f.1:** Decisions regarding controlled re-entry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented.

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#### Relocation

Key responsibilities related to relocation include:

- Coordinating and implementing decisions about **relocation of individuals not previously evacuated** to a safe area (i.e., where radiological contamination will not expose them to doses that exceed the relocation PAGs.).
- Providing for short- or long-term **relocation of evacuees** who lived in areas that have residual radiation levels above the PAGs.

Of particular interest is the ability to communicate with OROs regarding:

- Timing of actions
- Procedures for relocation
- Notification of, and advice for, evacuated individuals who will be converted to relocation status.

OROs should also demonstrate their ability to communicate instructions to the public regarding relocation decisions.

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### **Re-Entry**

Key areas related to implementation of re-entry decisions include:

- Controlling the re-entry and exit of individuals who temporarily re-enter the restricted area, to protect them from unnecessary radiation exposure.
- Controlling the exit of vehicles and other equipment, to control the spread of contamination outside the restricted area.
- Establishing monitoring and decontamination facilities.

Several examples of control procedure decisions were discussed in Lesson 5. Briefly, they involved:

- Dosimetry for emergency workers
- Questioning of individuals wishing to enter the area
- Maps and plots of radiation exposure rates
- Advice on areas to avoid
- Exit procedures (e.g., monitoring of individuals, vehicles, and equipment; decision criteria regarding contamination; proper disposition of emergency worker dosimetry; and maintenance of emergency worker radiation exposure records)

These are the kinds of re-entry decisions whose implementation is evaluated under this criterion.

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### **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. This includes:

- Identifying and prioritizing services and facilities that require restoration within a few days, such as medical and social services, utilities, roads, schools, and intermediate-term housing for relocated persons.
  - Identifying the procedures and resources for their restoration.
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**Other Exercise Concerns**

Other concerns related to relocation, re-entry, and return include communications and use of Federal resources.

- **Communications.** Communications among OROs for relocation, re-entry, and return may be simulated; however all simulated or actual contacts should be documented. These discussions may be accomplished in a group setting.
  - **Federal resources.** OROs should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.
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