

**OBJECTIVE 18 (21): RECEPTION CENTER - MONITORING,
DECONTAMINATION, AND REGISTRATION**

OBJECTIVE

Demonstrate the adequacy of procedures, facilities, equipment, and personnel for the radiological monitoring, decontamination, and registration of evacuees.

INTENT

This objective is derived from NUREG-0654 which provides that OROs should have the capability to implement radiological monitoring and registration of evacuees at relocation centers (more accurately termed reception centers) in host areas. Although decontamination is not included under these evaluation criteria, the portions of this objective pertaining to decontamination of evacuees is a logical extension of the radiological monitoring process. (See evaluation criteria in Planning Standards H., I., J., and N.)

Demonstration of this objective focuses on activities associated with the monitoring, registering, and decontamination of evacuees and their vehicles. Demonstration also includes accomplishing these objectives through adherence to ORO plans.

DEMONSTRATION CRITERIA

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CRITERION

J.10.h.,12.

1. The reception center(s) has adequate space available for the monitoring, decontamination and registration of evacuees and is activated and operational in a timely manner.

Explanation

Responsible OROs should demonstrate the capability to determine which reception centers for monitoring, decontamination, and registration should be activated, based on scenario events. OROs should demonstrate the capability to contact the organizations responsible for providing these services.

A reception center is considered activated when the initial staff arrives and turns on the lights and other needed utilities. It is operational when the following steps are completed:

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- o the operational staff members have arrived to perform monitoring, registration and decontamination
- o monitoring, decontamination, and registration supplies and equipment are in place and confirmed to be operational
- o protective coverings, instructional signs, and other planned methods for minimizing contamination of the reception center are in place

The reception center staff should demonstrate the capability to provide adequate space for monitoring evacuees, decontamination activities, registration operations and storage of supplies; and, demonstrate the capability to provide separate male and female shower facilities.

Extent of Play

Under this criterion, it is preferable that activation of particular facilities and staff be determined during the exercise in response to scenario events, based on the areas and population being evacuated. However, in the event that there are constraints on the availability of facilities during the time that they would be activated in the exercise scenario, out-of-sequence demonstration is appropriate. Such demonstrations should be arranged in advance and specified in the pre-exercise agreement.

As a general rule, radiological monitoring, registration, and decontamination procedures for individuals, vehicles, and equipment should be demonstrated at the prescribed locations and facilities where they would be performed in an actual emergency or as required by the accident scenario. If large numbers of facilities or personnel are involved, a selection procedure may be used so that a representative number of the needed facilities and staff are activated for the exercise. All arrangements necessary to accommodate the scope of exercise play and demonstration of these procedures should be made by the responsible parties with the FEMA Regional Assistance Committee (RAC) Chair before the exercise and identified in the extent-of-play agreement. All facilities activated for the exercise should be set up as they would be in an actual emergency, with all route markings and contamination control measures in place.

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**H.10.,I.8.,2. The reception center(s) has adequate and appropriate
J.9.,10.h.,12. resources, is set up in logical order for it's operation
and control of contamination, and has trained staff and
procedures sufficient to accomplish monitoring of
evacuees within the time frames established in the
organizations plan.**

Explanation

The reception center staff should demonstrate the capability to minimize possible contamination of the facility through use of a floor covering (e.g., absorbent paper with plastic backing, cloth, reinforced plastic sheet, etc.) for an entrance pathway. They should demonstrate the capability to ensure that all designated areas used by contaminated evacuees have adequate floor covering and signs, and appropriate means (e.g., partitions, curtains, roped-off areas) to separate clean from potentially contaminated areas. Markings should direct clean evacuees, after monitoring, to the registration position(s). Supplies and facilities should be available for bagging contaminated clothing and waste.

The reception center staff should demonstrate the capability to use of monitoring instruments for each activated reception center. These instruments should be labeled on the exterior with the instrument responsiveness to an identified check-source.

Instrumentation used for monitoring may be of the type with a probe that has a movable beta shield or a portal monitor that has several fixed probes in a frame. The type with a probe is usually referred to as a portable survey instrument. It may be either of the hand-held type (e.g., a CD V-700) or a table-top model. Instruments used for detecting contamination do not require calibration; however, they should be accompanied by a radioactive check-source that can be used as a single point calibration. On some instruments, these check-sources are attached to the instrument (e.g., the CD V-700) or they may be separate (e.g., a portal monitor). Information for each instrument as to the proper reading (or range of readings) for the check source should accompany or be attached to the instrument. Portable instruments used for detecting contamination should be equipped with earphones or speakers so that the monitoring technicians can observe and move the probe without being distracted to read the meter indicator. The probes should be used with the beta window open and covered with a thin plastic. The purpose of the plastic cover is to provide an easy way to remove any contamination from the probe and thus reduce its sensitivity to contamination being monitored. A plastic thickness of 1 to 2 mils (e.g., a sandwich bag) should be thin enough to avoid shielding the beta radiation. Transparent plastic may be helpful to permit viewing whether the beta shield on the probe

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is opened or closed, however, this is not a requirement.

Prior to using an instrument(s) for monitoring, the monitoring technician should demonstrate the process of checking the instrument(s) for proper operation. In the case of a probe-type instrument, this involves checking the battery status, measuring the radiation from the accompanying check-source, and comparing the result to the proper reading stated on the label. In the case of a portal monitor, this involves turning the instrument on, checking for power indication, operating and observing any check circuits, counting background and making any associated adjustments, and counting the check source according to procedure for source location and counting time. Once the operability of the monitoring instrument is confirmed, background radiation levels should be determined in the immediate vicinity where individuals will be monitored. An instrument that does not respond properly to these parameters should not be used. Members of the monitoring staff should demonstrate the capability to perform the above functions prior to the operation of the monitoring equipment.

Extent of Play

All activities associated with this criterion should be completed as they would be in an actual emergency except as modified by the pre-exercise agreement.

At least one-third of the monitors called for in the plan for the activated centers should be available demonstrate the monitoring, decontamination, and registration procedures.

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J.9.,10.h.,12.

3. Procedures and equipment for monitoring and decontamination of evacuees are adequate.

Explanation

Reception center staff should demonstrate the procedures and equipment for monitoring individuals using all types of monitoring equipment. For probe type monitors, earphones or speakers should be used and the probe should be moved over the entire body at a distance from the surface and at a speed designated by the plan. The distance from the surface is usually designated to be 1 to 3 inches.

Reception center staff responsible for the radiological monitoring and registration of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the emergency planning zone (EPZ) population planning

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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 at the reception center using a monitoring procedure that meets minimum provisions presented below.) Each reception center is responsible for monitoring 20% of that portion of the plume EPZ allocated to the reception center.

The monitoring and registration staff should demonstrate the capability to achieve a monitoring productivity rate through the use of a monitoring procedure that entails use of a Geiger-Mueller-type gamma survey instrument with a range of about 0.1 to 50 milliroentgen per hour (mR/h), a portal-type monitor or a combination thereof. All monitoring staff using probe-type survey instruments should demonstrate the capability to position individuals for monitoring and perform the head-to-toe scanning and registration procedures within the time frame established in the plan. Demonstration should also include the capability to avoid cross-contamination of clean personnel when using portable survey instruments. Procedures to support this capability should include the use of gloves by monitoring personnel, and procedures to ensure that such personnel do not come into contact with unmonitored evacuees and evacuees found to be contaminated.

The monitoring staff should demonstrate the capability to make decisions on the need for decontamination of individuals during the emergency phase based on guidance levels and procedures stated in the plan or, alternatively the following: (1) 300 cpm above background or beta plus gamma radiation with a CD V-700 survey instrument, or equivalent; (2) one microcurie of Cs¹³⁷ beta/gamma activity from a sealed source with a portal monitor. (These levels are currently being reevaluated.) Evaluators should evaluate whether the demonstrated procedures were adequate to detect the required levels of contamination for the population designated for the reception center and within the time specified in the plan.

The reception center staff should demonstrate the capability to use action levels as a basis for initiating decontamination of evacuees. They should demonstrate the capability to decontaminate evacuees including removal of contaminated clothing and the use of shower facilities. The availability of separate male and female shower facilities should be demonstrated. The reception center staff should demonstrate the procedures for containing the spread of contamination through such measures as separating contaminated and uncontaminated individuals, providing changes of clothing for individuals whose clothing is contaminated and do not have uncontaminated clothing and storing contaminated clothing to prevent further contamination of evacuees or clean clothes.

The reception center staff should demonstrate the capability to determine which individuals cannot be decontaminated and should be referred to a medical facility. In the absence of guidance in the plan, the recommended action level for referral of individuals with fixed

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contamination to medical facilities for diagnosis and treatment is usually in the range of 5,000 to 10,000 cpm using a CD V-700 survey instrument or equivalent. (These values are being reevaluated and values for the portal monitor are expected to be added).

Extent of Play

The reception center staff should monitor and register six individuals consecutively using equipment and procedures specified in the plan. Where probe-type instruments are the primary monitoring equipment, at least six individuals should be monitored at the reception center in order to compute productivity rate per individual. All monitoring sequences for all of the monitors should be timed by the FEMA evaluators. The evaluator should compute, in sequence, an average individual monitoring rate and an hourly monitoring rate. (This rate should take into account the number of minutes in each hour that each monitor is expected to work without a break.) Based on the hourly monitoring rate, the evaluator should compute a total monitoring rate for the full complement of monitors assigned to that center. Evaluators should compare these calculated rates to the rates shown in the plan. If the average measured rates vary from those in the plan, this discrepancy should be examined and explained.

For portal monitors, at least one instrument should be used to evaluate the time required to position, monitor, and register six individuals consecutively to provide data for the above calculation. If portal monitors are used, a probe type instrument should also be demonstrated as discussed above by at least one monitor. Such instruments are useful for detecting and locating spots of contamination.

Under this criterion, decontamination procedures for at least one individual should be initiated in response to a controller inject. They should explain the use of action levels for determining the need for decontamination and for referring evacuees who cannot be adequately decontaminated to a medical facility. Evacuee decontamination procedures and the referral of individuals to a medical facility should be simulated through the interview technique. Contamination of the individual or the individual's clothing should not be simulated through the use of lantern mantles or other low-level radiation sources such as a radium dial watch.

All activities required to contain the spread of contamination should be conducted as they would be in an actual emergency.

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4. Evacuees are properly registered.

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Explanation

The reception center should demonstrate the capability to register individuals upon completion of monitoring and decontamination activities. The registration activities demonstrated at the center 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.

Procedures and records should be in accordance with the plan.

Extent of Play

Under this criterion, at least six or more of the monitored individuals should be registered as they would be in an actual emergency.

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**H.10.,I.8.,5. Vehicles and evacuee's possessions arriving at reception
J.9.,12.j. centers are monitored for contamination and
decontaminated, if necessary.**

Explanation

The reception center staff should demonstrate the capability to monitor arriving vehicles for contamination. Air intake systems, air filters, grills, bumpers, wheel wells and tires of vehicles should be monitored. For each monitored vehicle, a decision should be made, based on contamination levels specified in the plan, regarding whether or not significant contamination is detected. The reception center staff should demonstrate the capability to separate contaminated vehicles from clean vehicles, in order to prevent contact of clean individuals with contaminated vehicles and to keep unnecessary personnel away from the area where vehicles are being decontaminated. Special arrangements for the collection and containment of water used for decontamination are not necessary for protection of the environment and public health and safety. Water from decontamination activities may go directly to a storm sewer or other sewer or drain system or area normally designated for waste water that has been used for bathing or washing of vehicles and equipment.

Action levels provided in the plan should be used to determine the need for decontamination. In the event they are not provided in the plan, the recommendations for

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vehicles is usually no less than 300 cpm using a CD V-700 survey instrument with the beta shield open or equivalent. After decontamination, the recommendations are five mR/h on a CD V-700 for fixed contamination with measurements taken using the beta shield closed. (These values are being reevaluated.)

Extent of Play

Under this criterion, at least two vehicles should be monitored for fixed contamination and decontaminated as they would be in an actual emergency. In the case of extreme weather conditions, the decontamination process may be described to the evaluator. However, the area to be used for monitoring activities should be set up as it would be in an actual emergency in order to provide opportunity for evaluators to conduct a walk-through inspection of the area.

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N.1.a. 6. All activities described in the demonstration criteria for this objective are carried out in accordance with the plan, unless deviations are provided for in the extent-of-play agreement.

Explanation

Responsible OROs should demonstrate the capability to follow policies, implement procedures, and utilize equipment and facilities contained in their plans and procedures. OROs should demonstrate that they can follow sequences outlined in the various procedures and perform specified activities as necessary.

Extent of Play

Under this criterion, all activities should be carried out as specified in the plan, unless deviation from the plan is provided for in the extent-of-play agreement.

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CLARIFICATION OF TERMS

The following definitions describe the limited meaning of terms in the context of the Exercise Evaluation Methodology and may vary from the full technical definition for all circumstances.

Activation refers to a process by which a facility is brought up to emergency mode from a normal mode of operation. Activation is completed when the facility is ready to carry out full emergency operations.

Action levels refers to thresholds for contamination levels that trigger the need for decontamination established in the plan.

Check source refers to a radioisotope with a relatively fixed activity level used to determine the responsiveness of survey instruments.

Congregate care refers to the provision of temporary housing and basic necessities for evacuees.

Congregate care center is a facility for temporary housing, care, and feeding of evacuees.

Controller inject refers to the introduction of events, data, and information into exercises to drive the demonstration of objectives.

Counting refers to 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.

Facility refers to any building, center, room(s), or mobile unit(s) designed and equipped to support emergency operations.

Fixed contamination refers to contamination that remains after loose contamination has been removed by decontamination.

Host area refers to a geographical area outside the plume pathway emergency planning zone where functions such as congregate care, radiological monitoring, decontamination, and registration are conducted.

Monitoring refers to the measurement of radiation levels, usually with a portable survey instrument.

Offsite response organization refers to any State and local government, supporting

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private industry and voluntary organizations and licensee offsite response organizations that are responsible for carrying out emergency functions during a radiological emergency.

Portal monitor refers to a radiation monitor consisting of several radiation detectors arranged in a fixed position within a frame that forms a passageway for individuals being monitored.

Reception center refers to a facility where monitoring, decontamination, and registration of evacuees is conducted.

Relocation refers to a protective action, taken in the post-emergency phase, through which individuals not evacuated during the emergency phase are asked to vacate a contaminated area to avoid chronic radiation exposure from deposited radioactive material.

Walk-through refers to a type of evaluation in which evaluators inspect the physical layout of a facility or area including equipment, attendant resources, and procedures to determine conformity with specific offsite response organization plans.