



First Responder 12-point Guidance in the Event of a Dirty Bomb, RDD or other Radiological Incident

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- 1. Assume all explosions, particularly car explosions, could be dirty.**
- 2. If no dose or activity readings are available, set up an affected or exclusion zone boundary at 500 m from ground zero.**

If readings are available, set the full exclusion zone (around ground zero) outer boundary as about 1 rem/hr (10 mSv/hr). This boundary will also be the hot zone inner boundary. Set the hot zone outer boundary as about 0.1 rem/hr (1 mSv/hr).

Within this zone, essential personnel can operate for several hours without accumulating significant dose. Exact adherence may not be feasible because of logistical or geometric issues and plus or minus a factor of 2 can be expected.

Set the outer boundary of the warm zone (affected area) to about 2 mrem/hr (20 μ Sv/hr) depending upon operability. Local decisions may warrant establishing boundaries at 2x or 4x background, but these may be miles from ground zero.

- 3. All personnel in the hot zone should wear full PPE (turnout or bunker gear) with a particulate full face mask and have an updating, alarming cumulative dosimeter that can be used to track total dose. Take any precaution necessary to avoid inhaling or ingesting dust and particulates. Radioactivity will be in particulate form.**
- 4. When it is determined the situation is radiological, immediately alert the appropriate secondary response teams, such as CST, RAP and FBI, as advised in the unified command protocols for your region. If necessary call:**

National Response Center	1-800-424-8802	NRC	1-301-816-5100
National Guard CST	1-800-343-6701	DHS	1-202-727-6161
FBI (ATF bomb)	1-888-283-2662	FEMA	1-202-586-8100
DOE (RAP Coordinator)	1-505-845-4667	DOE OEM	1-202-586-8100

- 5. Occupancy time outside the hot zone but within the warm zone is unrestricted for essential personnel for the duration of the initial response (days to weeks).**

Establish Incident Command upwind of ground zero at the closest point outside the affected zone. Have alternative positions ready in case of change in wind direction.

- 6. Evacuate all people from the affected area (> 2 mrem/hr) and exclude non-essential personnel thereafter. Expect self-evacuation for large populations of uninjured persons and provide them with safe designated routes out of the affected area (work with building managers to establish subterranean routes). Try to establish quick dose-rate screening, or radiological monitors, to determine those relatively few needing decontamination, but do not attempt mass decon of large populations. Instead, advise removal of external clothing, bag if possible, avoid eating, drinking**

or touching facial region, go directly home, shower with warm water and soap, and do not use hair conditioner, hair color, or other fixative hygiene products.

Local decisions may warrant establishing large fire hose wash down curtains along decon corridors for rapid decon of evacuees and equipment, however, in large urban settings this will not be feasible.

7. Do not decontaminate vehicles or structures during the initial response phase. Do not try to contain contaminated water, but allow, or even encourage, it to enter the municipal stormwater drainage system. Alert City Manager or wastewater treatment facility manager for possible diversion strategies.
8. For those heavily contaminated persons, e.g., where there is obvious surface radioactive material or where they are heavily injured from the blast, establish decon areas and decon corridors connecting the hot zone to the boundary of the warm zone or affected area. Provide those with heavy external contamination of the upper body with follow-up exams to determine possible contaminant inhalation or ingestion. Countermeasures, e.g., Prussian Blue, should be evaluated promptly.
9. Separate persons needing immediate medical attention and remove outer garments, survey for surface contamination, decon if necessary and possible, wrap in clean blankets in decon zone and evacuate. Inform the receiving medical facility that the person has little or no surface contamination or they may deny admittance.
10. Commence mapping the affected area to obtain a rough dose profile of the area, marking hot and cold spots to assist in avoiding large doses during operations, and to assess the magnitude of the situation.
11. Essential personnel within the affected area should record cumulative dose, if possible, and not exceed about 5 rem (50 mSv) total unless protection of critical infrastructure is deemed imperative and no alternative exists.

Do not exceed about 10 rem (100 mSv) except to save lives and protect critical infrastructure. Note: no health effects ever observed for doses less than 10 rem.

Do not exceed about 25 rem (250 mSv) unless the responder decides voluntarily, and with full knowledge of the risks, to save large numbers of lives and protect critical infrastructure that may harm large populations if not secured.

Do not exceed about 50 rem (500 mSv).

12. Sheltering in place is only advisable if the population is aware of the radiological nature ahead of the plume, unlikely in most cases.

Evacuate buildings along determined safe routes away from the hot zone.

Do not shut down building ventilation systems. Modern ventilation systems will filter most radioactive particulates and shut down may cause chimney effects.