

**PHOENIX REGIONAL  
STANDARD OPERATING PROCEDURES**

**RADIOLOGICAL HAZARDS**

**M.P. 204.03**

**04/98-R**

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This procedure is designed to provide basic operational guidelines for managing a radiological incident. This procedure is for peace-time radiological emergencies and does not specifically apply to nuclear warfare radiological contamination.

The Fire Department responsibilities during radiological emergencies include rescue, treatment, fire control/extinguishment, control of contamination spread and alerting responsible experts/agencies. Actual clean-up and overhaul operations will not normally be a Fire Department responsibility, although the Fire Department will be responsible for seeing that such operations are completed. Shippers and/or manufacturers of radiological materials will normally be responsible for clean-up operations using trained clean-up personnel and equipment.

### **DISPATCH**

The Dispatch Center will dispatch either a 2-1 assignment or a 1st Alarm assignment, with the Hazardous Materials Team to any incident reported to involve radiological materials. The size of the assignment will be based on the location and type of situation reported.

Dispatch will advise responding units of the prevailing wind direction.

When a radiological incident is confirmed, Dispatch will notify:

1. D.P.S. Communications to dispatch personnel from the Arizona Radiation Regulatory Agency and D.P.S.--C.V.S.S. unit.
2. Phoenix Fire Department personnel with advanced radiological training--(list in Information File).
3. Maricopa County Civil Defense--on request from Command.

### **SITE OPERATIONS**

At the scene, Command must consider both direct radiation exposure and contamination. If there is no life hazard, rescue situation or fire, there is no reason to risk exposure of Fire Department personnel. First arriving units should secure a perimeter, evaluate the situation and wait for the arrival of the Hazardous Materials Team.

If the immediate commitment of personnel is necessary, Limited Access Zone procedures shall be implemented to minimize the exposure and contain the spread of contamination.

The entry of personnel shall be limited to the absolute minimum number and time required for the urgent situation. These personnel will use full protective clothing and SCBA.

Any commitment of personnel to the Limited Access Zone shall include at least one survey instrument per team to monitor radiation hazard levels. Dosimeters shall be issued to all personnel operating at the scene.

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Hazard Zone tape shall be stretched to define an area where readings of 2MR/hr are detectable. This must take into account potential downwind spread of contamination. Hazardous Materials Team personnel will determine readings and define the Limited Access Zone.

A Decontamination Area must be established within the perimeter of the Hot Zone, adjacent to the Lobby Control (entrance/exit) point. All personnel and equipment leaving the Hot Zone must be checked for radioactive contamination by qualified personnel. All persons or items must go to the Decontamination Area before leaving the Hot Zone. (See Decontamination.)

Patients requiring treatment, who cannot immediately be decontaminated, must be placed in an isolated Treatment Area, away from other patients and inside the Hot Zone perimeter.

### **TACTICAL CONSIDERATIONS**

Incidents With Fire:

1. Initiate normal tactical firefighting operations.
2. Always approach from upwind.
3. Do not ventilate.
4. Minimize the use of water.
5. Control water runoff-impound for disposal.
6. Minimize exposure of personnel.
7. Use full protective clothing with SCBA.

Rescue/EMS Incidents:

1. Remove patients quickly.
2. Treat patients for medical problems/injuries.
3. Alert hospitals to prepare for contaminated patients.
4. Use full protective clothing and SCBA.
5. Decontaminate vehicles used to Transport.

### **NUCLEAR WEAPONS**

The radiological hazard of nuclear weapons in transit is similar to other radioactive materials and can be handled with similar tactics.

These weapons however, contain considerable amounts of high explosives which may be shock sensitive and can detonate very easily. They are especially dangerous when the weapon has broken up and the high explosive is scattered about. If a nuclear weapon involves fire, evacuate the area of 2,000 feet, in all directions, immediately. All down wind areas must be checked for contamination.

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TREATMENT OF CONTAMINATED PATIENTS

Do not delay field treatment of injuries. Radiological contamination, itself, is not a medical emergency. Treatment of contaminated patients should proceed with the following precautions:

- All contaminated patients should be placed in one Treatment Area--separate from noncontaminated patients--within the Hot Zone perimeter, but beyond the 2 MR/hr exposure distance.
- All treatment personnel should use SCBA or dust-filtering type masks, long sleeve shirts or coats, gloves and nomex hoods.
- A mask or other airway filtering means should be used on the patient to limit Inhalation/ingestion of airborne contamination.
- Bandage all open wounds as quickly as possible to prevent wound contamination.
- Carefully peeling or cutting of outer clothing from the patient's body will remove most of the contamination.
- Removed clothing, watches, wallets, etc., must be placed in plastic bags or other appropriate containers, sealed and properly identified.
- A clean plastic bag or other clothing should be placed over the patient's scalp hair to minimize the spread of contamination. Do not cover face.
- Much of the contamination on a patient's skin can be removed by wiping with a moist cloth or tape (put in plastic bag afterwards).
- Hot spots of contamination on the patient's body that cannot be removed by wiping, etc., should be marked with ink outline or tape.
- Before transporting, all contaminated patients must be wrapped in blankets or sheets to completely cover them in order to limit the spread of contamination. Only the face should be left exposed.
- Hospitals and rescues must be alerted early and before patient transportation is initiated so they can prepare to receive radioactive contaminated patients.
- All contaminated patients should be sent to a single hospital or to as few as possible. Once contaminated, these hospitals could be out-of-service for some time.
- Where there are large numbers of contaminated patients, place as many patients as possible in each rescue to minimize contamination spread to other rescues.
- Reuse of contaminated rescues for contaminated patient transportation should be considered. If all available rescues become contaminated, these vehicles can be out-of-service for long periods of time until they can be decontaminated.
- Before treatment personnel can be released from the scene, they must be checked for contamination and decontaminated. All equipment used in patient treatment must also be checked and decontaminated. This evaluation will be conducted in the Decontamination Area.

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FIRELINE TAPE

