

Personal Decontamination

To protect the health of people who've been exposed to hazardous materials and of those who treat them, decontamination is done in the field.

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To prevent the bodily damage which can follow exposure to hazardous materials, the toxic substance has to be removed, neutralized, or diluted. This is "personal decontamination"—as opposed to "field decontamination" of equipment and apparatus. (These are the terms the Fire Department uses. The New York City Emergency Medical Service calls the procedures "medical" and "logistical" decontamination, respectively.)

When a haz-mat incident creates the need for personal decon at the scene, the Emergency Response Squad of EMS's Special Operations Division (S.O.D.) does the job. One or two of this team's 10 emergency medical technicians are always on duty; the rest are on call. Team members in appropriate protective equipment operate in the support area, or "cold zone." This is outside the contamination reduction area or "warm zone" and the exclusion area or "hot zone."

The S.O.D. squad responds to haz-mat emergencies with a variety of equipment, including:

- Several specialized vehicles, equipped with electrical generators, scene lighting, and command post facilities.
- All levels of personal protective garments, including fully encapsulated suits.
- Scott 4.5 SCBA and spare cylinders.
- Radiological monitoring equipment, personal dosimeters, film badges, and other monitors.
- "View kits," including binoculars and infrared measurement devices, for observing hazardous scenes from safe distances.
- An extensive haz-mat reference library.
- Resources for supporting a major decon operation, including a large number of disposable garments, extra-strong soap, and related supplies.

(In addition to the items the squad brings to the scene in its own vehicles, EMS provides and maintains the supplies stored on board both the Fire and Police departments' decon shower trailers.)

As individuals exposed to haz mats are brought to the decon area, the EMS team performs immediate triage (medical sorting). This allows the squad to determine the extent of injury, if any, and to establish whether decon or patient care takes priority in each case. Unstable victims are treated first, decontami-

nated later, with the medical team providing continuing care through the decon process if necessary. Should a person require transport before decontamination, the team will make sure the ambulance crew is properly protected, and will often accompany the patient to provide additional support to emergency room personnel.

For exposed persons well enough to undergo decon in the field, EMS squad members don appropriate protection, up to the level of chemical protective clothing, and stand by in the shower area to give instructions and other help. The actual decontamination is of three types: washing away the toxic substance, diluting it, or neutralizing it. FDNY Hazardous Materials Co. 1 and the New York City Departments of Health and Environmental Protection supply the toxicological and reactivity information that determines which technique applies. The EMS team ensures that the procedures reduce the contamination to acceptable levels. Generally this is done by making sure the complaint—such as redness or a burning sensation—is eliminated.

Contrary to popular perception, personal decon often involves more than simply water showers. One example is an incident in the Bronx in March of last year, where firefighters were exposed to toluene while operating at a warehouse fire. Thirty firefighters underwent chemical reduction using isopropyl alcohol, following DEP guidelines. EMS sent its officers to various hospitals to procure caseloads of the alcohol.

After the decon process, emergency medical technicians and paramedics from regular EMS ambulance crews do baseline medical screening of all decontaminated persons:

- Vital signs are monitored;
- A history is taken;
- A vectored physical examination is performed ("vectored" means it's focused on the specific situation; for instance, if a person complains of shortness of breath, the EMS crew will concentrate on respiratory causes); and
- A clinical baseline is established. This process checks current health and documents conditions at the time of exposure for future reference. EMS performs a similar exam upon request for members of Haz Mat 1

Why Decontaminating People Is an EMS Function

Decontamination of personnel is a health-related activity. It consists of directing and monitoring removal of contaminants from the body, diluting them, or neutralizing them based on clinical recommendations (such as we might get from the Health Department's Poison Control Center). These actions clearly affect health; as such, decon must be performed and supervised by emergency medical services personnel who have appropriate training for the task.

In addition, civilians and emergency response personnel undergoing decon frequently have already been affected by the hazardous materials, have been otherwise injured during the incident, or are suffering adverse effects (such as heat-related conditions) of working in chemical protective garments. These individuals require medical triage for decon priority-setting. They also need pre-hospital care and medical surveillance, often begun even before all protective equipment has been removed. Again, the situation calls for EMS providers in the contamination reduction area to properly handle these casualties and to deliver them to other EMS personnel in the support area.

Yet another reason for EMS providers to handle decon is the need to keep from spreading toxic substances and increasing the number of victims. Having medical care available on the scene makes it possible to stabilize most victims so they can be decontaminated before they're taken to the hospital. Transporting contaminated patients, even when "reverse isolated" by being wrapped to prevent the transfer of contaminants to the external environment, exposes EMS workers and the ambulance to contamination. Under those circumstances, the ambulance must be removed from service for cleaning and monitoring. EMS personnel may also require decon and monitoring.

Similarly, transporting contaminated persons reduces the emergency department capacity for other patients, because most hospitals would have to isolate part of their emergency room to receive a contaminated patient. Emergency department facilities and staff would have to undergo decontamination, as well.

Provided victims are sufficiently stable, personal decon done in the field limits the spread of contamination and allows EMS to manage the medical portion of the incident without "relocating the disaster."

On top of the logistical reasons for EMS involvement are the legal reasons. Title 29 of the *Code of Federal Regulations*, "Hazardous Waste Operations and Emergency Response: Final Rule," requires that the following be provided:

1. Pre-hospital emergency care and transportation to anyone who's ill or injured as a result of the incident

2. Medical surveillance (such as exposure and heat stress monitoring) for all emergency response personnel before, during, and after operations where personal protective equipment is required.

3. Medical screening and referral for anyone who may have been exposed to haz mats, without wearing the necessary personal protective equipment, at concentrations above the exposure levels established as acceptable in standard references.

4. Stand-by coverage, with medical equipment and transportation, whenever emergency personnel operate in a hazardous environment.

5. Routine personal decon for persons who've been exposed to haz mats but aren't adversely affected, and who are otherwise uninjured.

6. Emergency medical decon for persons who've been exposed and *are* adversely affected, or who are otherwise ill or injured and require prehospital care. (Emergency decon procedures differ from routine only in the level of urgency.)

7. Appropriate command, coordination, and safety of the EMS operation at the scene. This includes ensuring the safety and protection of EMS personnel and equipment, hazard recognition and identification, hazard analysis and reference, and liaison with other agencies.

For all these reasons, the New York City EMS has been formally integrated into haz-mat emergency response in the city since mid-1982. At that time, the EMS Division of Technical Services, together with the Fire Department and the city's Department of Environmental Protection, was involved in developing a mobile decon unit. In addition, in a memorandum of understanding among all three agencies, EMS was committed to providing "technicians trained in hazardous materials and decontamination," whose functions were to be determining the priority of treatment and decontamination, performing the actual decon tasks, and ensuring appropriate medical follow-up.

—Z.G.

following any incident during which they've worn chemical protective suits or splash protection, because of the heat stress such garments cause.

Members of the EMS Emergency Response Squad receive extensive training for their duties. It consists of at least a 40-hour U.S. Environmental Protection Agency course on haz-mat incident response. Emphasis is on individual and team safety, use of reference materials, monitoring equipment, personal protective

equipment, and medical decontamination.

As required by the U.S. Occupational Safety and Health Administration, EMS operates at haz-mat and all multiple-casualty incidents using the incident command system. This makes the EMS operation efficient, effective, and safe. It also enables EMS to interact effectively with the FDNY, which has also begun to implement the nationally accepted system, and with other agencies at the scene.

Administration means paperwork, and when the paperwork's useful life is over, it means waste.

Now, because of an office paper recycling program, in a simple procedure, the 950 employees at Headquarters and 60 or so members at the Fire Academy are keeping their office-paper waste out of New York City's sole remaining dump.

That landfill gets 22,000 tons of waste a day. But FDNY employees will be sending their office paper, instead, to be turned into new paper products. And this recycling uses 70 percent less energy than making paper from new wood.

The Sanitation Department's Office Recycling Program provides the collection materials and hires the contractors to remove the waste paper. The materials are basic: green, polyvinyl file folders printed with a list of acceptable and unacceptable types of paper; cardboard boxes; and plastic or canvas collection bins.

The folders go on desks, so a person doesn't have to get up and walk to the box with each piece of paper discarded. At the end of the day, each person empties his or her folder into the cardboard box, and when the box fills, a designated member empties the box into the bin. At Headquarters, the bins are on each floor; at the Fire Academy, there's one by the housewatch in Building 9 and one in Building 10, at the opposite end of the academy. As often as the bins fill up, a

contractor comes to take them away, replacing them with empty ones. Nineteen bins full of paper are being carted out of Headquarters each week. (The Bureau of Information and Computer Services, at 109 Park Row in Manhattan, has been involved in the program for years. The Sanitation Department reports that its contractors hauled more than six tons of recyclable paper away from BICS during fiscal 1989.)

Anyone in the field who'd like to get involved can save the acceptable papers and add them to the housewatch bin whenever they visit the Fire Academy. Folders and boxes are available at the academy's supply store. Units and individuals are especially encouraged to recycle their department "books" when getting updates or a new set.

The Sanitation Department will take any white paper, computer paper, manila file folders, bound reports, teletype paper, white envelopes, and carbonless (NCR) paper. It won't take magazines, newspapers, carbon paper, cardboard, glossy paper, or plastic-windowed envelopes. The rule of thumb: When in doubt, throw it out. (If some of the prohibited materials slip into the collection, it doesn't mean the whole pile is thrown out. But it does contaminate the pile, lower the price paid to the city for it, and make the recycling program a little less successful.)

For more information, call Capt. Joe Leto at (212) 860-9228 or Gloria Sturzenacker at (212) 860-9486.



Office
Paper
Recycling
in the
FDNY

Clarification: Inspecting Social Clubs and Cabarets

The article "Preventing a Next Time," in the 2nd Issue of 1989, instructed companies inspecting after-hours clubs to forward to the New York City Buildings Department an A-8 marked "priority transmittal" if they're denied access. This is in compliance with *Fire Prevention Information Bulletin 10*, "A-8's for Special Attention."

Section 1.1 of *FPIB 10* directs the forwarding of such an A-8 if "conditions that might require a vacate (suspected structural hazard, illegal occupancy)" are found and "all attempts to gain access have failed." Those attempts should include the actions required by *All Units Circular 147R*, "Fire Prevention Inspection Program," Section 9.1: The company should notify the administrative battalion chief, who will attempt to contact the owner to request an inspection. If the battalion chief is unable to contact the owner or arrange an inspection, a search warrant will be sought. Procedures to be followed in obtaining and serving a search warrant are found in this same section of *AUC 147R*.