

Union County Standard Operating Guidelines
Special Operations

Special Operations, SOG 4.20

HAZARDOUS MATERIALS EMERGENCIES

1. Response Guidelines

- a. Gather as much information from the dispatcher as possible. Take appropriate action/precautions as you approach the scene. Information that is most helpful includes the following:
 - ✓ Name of chemical or product involved.
 - ✓ Type of incident
 - ✓ Size of incident, or amount spilled
 - ✓ Location of incident
 - ✓ Best direction for equipment to approach the scene.
 - ✓ Any injuries
 - ✓ Any employees unaccounted for
 - ✓ Any other information about the incident that dispatch can provide (including current wind direction/speed, other weather information).
- b. Hazardous materials assignments are dispatched using the appropriate run card for the jurisdiction involved. Pre-incident size-up should be done with pre-plans of different facilities in the area.

2. Size Up

- a. The first arriving officer or in-charge firefighter will establish a command post and give size-up. First arriving companies must be extremely cautious not to commit themselves to a dangerous position or situation. When approaching, slow down or stop to assess effects of wind, topography, and location of the situation. Command post will advise all other incoming companies to stop at a staging area and wait for further instructions.
- b. ALL INCOMING COMPANIES SHALL STAGE IN A SAFE LOCATION, TAKING INTO ACCOUNT WIND, SPILL FLOW, EXPLOSION POTENTIAL, AND ANY OTHER PERTINENT FACTORS.
- c. It may be necessary to take immediate action to make a rescue or evacuate an area, but this should be done with an awareness of the risk to emergency response personnel, using all available protective equipment.
- d. Identify a hazardous area based on potential danger, taking into account materials involved, time of day, wind and weather conditions, location of the incident and degree of risk to unprotected personnel.

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- e. The major problem in most cases is to identify the type of materials involved in a situation, and the hazards presented, before formulating a plan of action. Look for labels, markers, and shipping papers. Ask personnel at the scene (plant management, responsible party, truck drivers).
 - f. Utilize reference materials and contact other sources for assistance (Chemtrec, manufacturers of material, other agencies).
3. Levels of Response
- a. **Level I** – Potential Emergency Condition: An incident which can be controlled by the jurisdictional fire department, and does not require evacuation of other than the involved structure or the immediate outdoor area. The incident is usually confined to a small area and does not pose an immediate threat to life or property. The LEPC Emergency Coordinator shall be notified of the spill.
 - b. **Level II** – Limited Emergency Condition: An incident involving a greater hazard or larger area which poses a potential threat to life, property and/or the environment which may require a limited evacuation of the surrounding area and utilization of agencies other than the local fire department. Consider notification of appropriate agencies for standby or response.
 - c. **Level III** – Full emergency condition. An incident involving a severe hazard or large area which poses an extreme threat to life and property and will probably require a large scale evacuation; or an incident requiring the expertise or resources of county, state, federal, or private agencies and/or organizations. Agencies notified in Level I and II will be asked to report to the Union County E.O.C. unless otherwise stated by the IC.
4. Action Plan (IAP)
- a. The command post will have to formulate an action plan to deal with the situation. The action plan must identify the method of hazard control and identify the resources available and/or required to accomplish this goal. It may be necessary to select one of several different options or the best immediate action may be NO ACTION AT ALL until proper resources are available (ICS Form 202 – IAP).

All action plans must provide for:

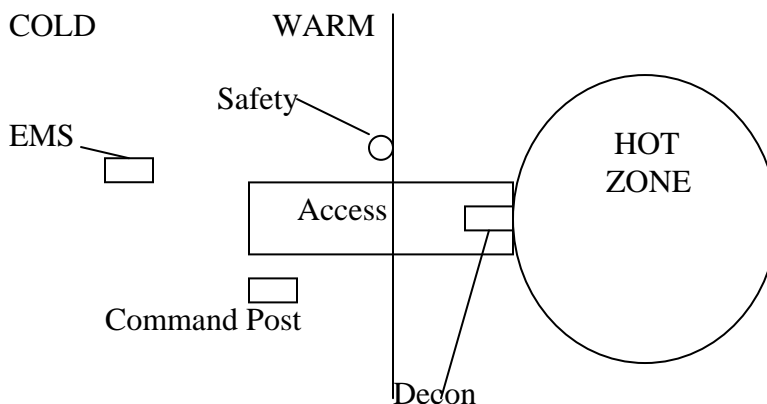
- Safety of emergency responders
- Safety of citizens
- Evacuation of endangered and mass care if necessary
- Control of situation
- Stop and/or lessen the impact of the incident on the environment
- Disposal or removal of hazardous material.

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- b. Avoid committing personnel and equipment prematurely or “experimenting” with techniques and tactics. Many times it is necessary to evacuate and wait for special equipment or expert help.

5. Hazard Zones

- a. The following perimeters (zones) will be established by the Incident Commander at working hazardous materials incidents. The shape and dimensions of the hazard zones shall depend upon such factors as the magnitude of the problem, wind direction and velocity, surrounding topography and/or adjacent structures, etc.
- b. **Hot Zone (High Hazard)**
Immediate danger area surrounding the problem site. Only entered by trained hazardous materials personnel, or individuals possessing particular knowledge of the problem/situation, under monitored conditions and with the proper protective equipment. During actual operations, a back-up team (minimum of two personnel) with appropriate protection will be stationed at the edge of the Hot Zone.
- c. **Warm Zone (Potential Hazard)**
Area surrounding the hot zone which presents a minimum hazard to Fire Department personnel. Restricted to those assigned by the Incident Commander.
- d. **Cold Zone (No Hazard)**
Area surrounding the warm zone which presents no hazard to emergency services personnel and equipment. Reserved for emergency services functions only, command post, triage, agency liaison, and news media.



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6. Levels of Protection

- a. Level A – Protection should be worn when the highest level of respiratory, skin, eye, and mucous membrane protection is needed.
- b. Level B – Protection should be worn when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection is required.
- c. Level C – Protection should be worn when the type of airborne substance is known, concentrations are measured, criteria for using air purifying respirators is met, and when skin/eye exposure is unlikely. Periodic monitoring of the air must be performed.
- d. Level D – Protection can be worn when there is no respiratory protection needed and normal street clothes are adequate for skin protection.

NOTE: Personnel will not function at a level exceeding their training and/or expertise. The Incident Commander will use good judgment in assigning duties to personnel.

7. Use of Non-Fire Department Personnel

- a. In some cases, it may be advantageous to use non-fire department personnel to evaluate hazards and perform certain functions for which they would have particular experience or expertise.
- b. When such personnel are outfitted with breathing apparatus, etc., they must be made aware of the functions, limitations, and safety precautions necessary in their use. Division personnel with the necessary protective equipment must closely monitor and/or accompany such personnel.

8. Contamination

- a. Contamination can be internal or external and personnel and equipment can become contaminated by:
 - Liquid residue
 - Vapor residue
 - Particulate residue
 - Exposure to products of combustion
- b. Contaminants may remain on:
 - Body
 - Clothing
 - Protective clothing
 - Tools, equipment

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9. Decontamination

a. Proper decontamination is essential to ensure the safety of personnel and property. Decontamination site should be in the warm zone at the incident.

b. Methods of decontamination

➤ Dilution

- ✓ The use of water to flush the hazardous materials from the protective clothing and equipment.
- ✓ Water reactivity must be considered
- ✓ Run-off must be contained
- ✓ May reduce concentration, but not chemical make-up

➤ Absorption

- ✓ Limited application for personnel
- ✓ Used for “picking up” a liquid to prevent enlargement of the contaminated area
- ✓ Good for flat surfaces

➤ Chemical Degradation

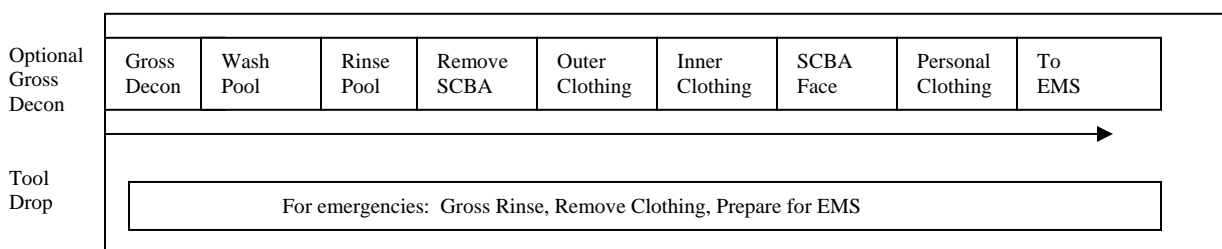
- Alters the chemical structure of the Hazardous Material
- Commonly used agents:
 - ✓ Sodium hypochlorite (bleach)
 - ✓ Sodium hydroxide (drain cleaner)
 - ✓ Liquid household detergents
 - ✓ Isopropyl alcohol
- Technical advice should be obtained from the manufacturer.
- Never apply degradation agents directly to the skin!

c. Factors that have to be considered include:

- Properties of the contaminants
- The amount
- Location
- Containment of the contaminants
- Exposures to personnel
- The potential for the substance to permeate or penetrate the equipment.
- The number and movement of personnel among the control zones
- Methods available for protecting responders during decontamination procedures.

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d. Typical Decontamination Line:



10. Emergency Medical Guidelines

a. Upon arrival at the scene, EMS personnel will:

- Check in with the Command Post
- Determine if hazardous substance has been identified.
- Determine health and safety hazards of substances involved
- Reference text
- Determine signs and symptoms of poisoning
- The Poison Control Center may obtain and provide the following information:
 - ✓ Health hazard
 - ✓ Symptomology
 - ✓ Recommendation of triage
 - ✓ Necessity for decontamination
- Assist Safety Officer with monitoring of personnel in protective gear.
- If needed, administer initial emergency care
- Ensure that potential patients have been adequately decontaminated.

b. ALL EXPOSURES TO HAZARDOUS MATERIALS WILL FOLLOW THE PROTOCOLS FOR EXPOSURE FOLLOW-UP AND CARE AS OUTLINED IN THE AFFECTED DEPARTMENTS' EXPOSURE CONTROL PLAN.

11. Radiological Emergencies

a. Three basic radiation protection principles that will be used are:

- ✓ TIME
- ✓ DISTANCE
- ✓ SHIELDING

b. 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:

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- c. All contaminated patients should be placed in one treatment area separate from non-contaminated patients.
- d. All EMS teams will use SCBA or dust-filtering type masks, Tyvek coveralls, gloves and nomex hoods.
- e. Hospital and emergency vehicles must be alerted early and before patient transportation is initiated, so they can prepare to receive radioactive contaminated patients.
- f. 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.
- g. Remember where there are large numbers of contaminated patients, place as many patients as possible in each emergency vehicle to minimize contamination spread to other vehicles.
- h. Before treatment personnel can be released from the scene, they must be checked for contamination and decontaminated.
- i. All equipment used in patient treatment must also be checked and decontaminated. The evaluation will be conducted in the Decontamination Area.

12. Termination of Incident

a. Cleanup and Reentry

Upon completion of the emergency response, if it is determined that it is necessary to remove hazardous substances, health hazards, and materials contaminated with them, the cleanup will comply with OSHA regulations. All cleanup operations will be the spiller's responsibility. If the spiller cannot be determined, the LEPC Emergency Coordinator will arrange for cleanup operations in coordination with the OEPA.

The Fire Department with jurisdiction will rely upon the County Health Dept., EPA and the spiller to monitor and provide advice on any cleanup operation. Based on consultations with these individuals, the IC will declare when it is safe to return the area to its normal use. The Fire Department with jurisdiction will rely upon the OEPA to oversee the spiller's removal of the contaminants.

b. Documentation

The Incident Commander will prepare a report that summarizes the incident including, expenditures of time, manpower, equipment and supplies. All documents for recovery shall be submitted to the LEPC Emergency Coordinator

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for reimbursement. The IC will prepare any other reports that are necessary under the Union County LEPC Plan.