



EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE SPILLS AND RELEASES IN ARMY MILITARY TREATMENT FACILITIES

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PURPOSE.

To provide compliance strategies for responding to sudden or unexpected incidents involving hazardous substances. This paper describes three types of written emergency response plans for handling spills and releases, the applicable Occupation Safety and Health Administration (OSHA) standards, and the corresponding employee training requirements.

REFERENCES.

See Appendix A for a list of reference information.

POINTS OF MAJOR INTEREST AND FACTS.

Background

Hazardous substances include hazardous chemicals, biological agents, hazardous waste, and radioactive waste. These substances are present in a many locations in Army military treatment facilities (MTFs), including nursing units, operating rooms, outpatient clinics, pharmacies, laboratories, housekeeping, maintenance and mechanical rooms, and construction areas. Typical examples of hazardous substances found in these locations include, but are not limited to—

- Ethanol
- Formaldehyde
- Organic solvents
- Acids and bases
- Hazardous drugs
- Cleaning products
- Off-specification paints
- Lead-bearing electronics
- Intravenous therapy bags and equipment (containing Resource Conservation and Recovery Act-listed waste)

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- Hazardous wastes can be found in designated hazardous waste storage areas and in satellite accumulation areas. The Environmental Protection Agency provides processes to determine when to classify a used or expired hazardous substance or a hazardous substance that is scheduled for disposal as a hazardous waste in Title 40 Code of Federal Regulations (CFR) Part 261, (Identification and Listing of Hazardous Waste). Hazardous wastes are divided into four categories: listed wastes, characteristic wastes, universal wastes, and mixed wastes.

The Nuclear Regulatory Commission (NRC) has jurisdiction over employee safety and health requirements in licensed MTFs that use radionuclides, including emergency response procedures. However, radioactive waste is defined as a hazardous substance in the OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard (see Title 29 CFR Part 1910.120). Therefore, the NRC and OSHA may share jurisdiction when an emergency incident involves a mixed waste made up of licensed radioactive materials and other hazardous substances.

Emergency Action Plan (EAP) (Title 29 CFR Parts 2910.38 and 1910.120(q)(1))

Army MTFs must have a written EAP consistent with Title 29 CFR Part 1910.38 (Emergency Action Plans) when they require their staff members to evacuate everyone from the immediate spill or release area. In addition, MTFs must prohibit staff members from responding to the hazardous substance spill or release.

The EAP must include the name(s) or job title(s) of individuals who may be contacted by staff members seeking more information about the EAP or an explanation of their duties under the plan. The EAP should include—

- Emergency reporting procedures;
- Evacuation procedures, including the type of evacuation, exit route assignments, and rally points;
- Means for accounting for staff, patients, and visitors after an evacuation;
- Individual rescue or medical duties; and
- Actions to be taken by staff members who remain behind to complete critical actions before they evacuate.

At a minimum, all staff members must know—

- The emergency codes and the alarm system used within the MTF;

- Their specific roles and job duties in an emergency, including how to sound the alarm, evacuation procedures, exit route assignments, areas of refuge, and procedures for accounting for all staff members, patients, and visitors after an evacuation;
- Any other actions that need to be completed before evacuation; and
- The name(s) or job title(s) of the individual(s) to contact for more information about the EAP or their duties under the plan.

Training should be provided to staff members upon hire and when the plan is changed. There is no required number of hours for course length.

Incidental Spill Clean-up Plan (Title 29 CFR Part 1910.120(a)(3), Title 29 CFR Part 1910.1200, Title 29 CFR Part 1910.1450, and Title 29 CFR Part 1910.1030)

An incidental (minor) spill can be described as—

- Hazardous;
- Limited in quantity;
- Limited in exposure potential;
- Limited in toxicity;
- No or minor safety threat to individuals or immediate vicinity;
- No or minor health hazard to individuals or immediate vicinity;
- No or minor affects from the clean-up process; and
- No potential to become an emergency within a short time frame.

Bear in mind that the quantity of the hazardous substance spilled does not, by itself, determine if an incidental spill has occurred. Other variables include the hazards associated with the substance, the potential exposure level, the potential for danger, and the ability to safely contain the spill. Most hazardous substance spills that occur within MTFs can be classified as incidental spills.

The HAZWPOER standard does not cover incidental spills. Instead, other relevant OSHA and NRC standards (for example, Title 29 CFR Part 1910.1200, *Hazard Communication*; Title 29 CFR Part 1910.1450, *Chemical Hygiene Plan*; Title 29 CFR part 1910.1030, *Bloodborne Pathogens*; and Title 10 CFR Part 35.290, *Training for Imaging and Localization Studies*) address the clean-up of incidental spills. Incidental spill clean-up procedures can be addressed in a stand-alone Spill Response Regulation, or they can be part of the work area standing operating procedures (SOPs). Incidental spill clean-up procedures should describe—

- How to recognize when a hazardous substance spill or release requires a trained hazardous materials (HAZMAT) team to perform the clean-up;

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- Response and clean-up procedures, including proper decontamination techniques;
- First aid procedures;
- Proper personal protective equipment (PPE) selection and use;
- The location of the nearest eyewash and shower stations, spill kits, fire extinguishers, and other emergency equipment;
- Waste disposal procedures; and
- Spill reporting procedures.

Staff members can safely clean-up incidental spills provided that they—

- Have the proper PPE and spill clean-up equipment;
- Are trained consistent with the relevant OSHA and NRC standards; and
- Feel comfortable cleaning up the spill.

At a minimum, staff members must know—

- The hazardous substances present in their work areas and the safety and health hazards associated with those substances;
- How to access the Safety Data Sheets (SDSs);
- How to interpret and apply the safety and health information listed on container labels and SDSs;
- How to properly respond to the spill, to include alerting others in the work area that a spill has occurred, providing first aid for injured or exposed persons, confining the spill, selecting and using proper PPE, removing safety and health hazards (for example, sources of ignition, fumes, vapors, and dust); locating and using spill clean-up equipment, disposing of waste; and reporting spills.

Staff members working with or having potential exposure to hazardous chemicals under normal use conditions must attend Hazard Communication Training consistent with training requirements listed in Title 29 CFR Part 1910.1200 (Hazard Communication) before beginning work with hazardous chemicals. Additional training must be provided when a new physical or health hazard is introduced into the work area. There is no required number of hours for course length.

Laboratory personnel must attend Chemical Hygiene Training, consistent with training requirements listed in Title 29 CFR Part 1910.1450 (Chemical Hygiene) before beginning work with hazardous chemicals. OSHA allows employers to determine the frequency of the refresher training courses. There is no required number of hours for course length.

Staff members that may be exposed to blood and other potentially infectious materials (OPIM) in the work place must attend Bloodborne Pathogens Training consistent with

Title 29 CFR 1910.1030 (Bloodborne Pathogens). They must attend initial training before beginning work with blood and OPIM and attend refresher training annually thereafter. Furthermore, they must attend additional training when new tasks or procedures are introduced and when changes in existing tasks or procedures affect their exposure. There is no required number of hours for initial and refresher course lengths.

Emergency Response Plan (ERP) (Title 29 CFR Part 1910.120(a)(3) and Title 29 CFR Part 1910.120(q))

Army MTFs must comply with the HAZWOPER standard, specifically paragraph Title 29 CFR Part 1910.120(q), when MTF staff members respond to certain spills or releases involving hazardous substances that occur within the facility and when the MTF accepts and treats contaminated victims of a HAZMAT incident. For the definition of "emergency response" to be satisfied under the HAZWOPER standard, the hazardous substance spill or release must result in one or more of the following conditions—

- Involves an uncontrolled release of a hazardous substance that requires a response by trained employees from outside the immediate spill or release area or by other designated emergency responders, such as the local fire department or a trained HAZMAT response team;
- Requires evacuation of the work area;
- Causes high levels of exposures to toxic substances;
- Be life or injury threatening;
- Causes an immediately dangerous to life or health condition;
- Causes a fire and explosion hazard (exceeds or has potential to exceed 25 percent of the lower explosive limit)
- Requires immediate attention because of potential danger; and
- Presents an oxygen deficient condition.

In addition, Army MTFs with emergency departments must develop response plans for small- and large-scale incidents that may occur within the community that involves hazardous substances and requires the decontamination or treatment of victims. In keeping with the HAZWOPER Standard requirements, MTFs must have a written ERP in place to prepare staff members for such potential emergencies. The ERP must be part of the MTF's Emergency Operations Plan (EOP), and it should be coordinated with the MTF's community partners, such as the installation emergency operations section, the local fire department, and other healthcare facilities located within the region. The ERP should be tested during planned emergency response exercises. The ERP should include information on the following topics—

- Hazard Vulnerability Analyses (HVAs) to identify the worst-case scenarios and corresponding response capabilities. The Joint Commission recommends that healthcare facilities review and update their HVAs at least annually;
- Pre-emergency planning and coordination, to include the actions taken to mitigate, prepare for, respond to, and recover from hazardous substance spills and releases. The mitigation and preparedness phases address actions taken before an emergency and the response and recovery phases address actions taken during and after an emergency;
- Emergency recognition and prevention, including a description of the MTF's systems for alerting staff that an emergency has occurred and for immediately accessing information about hazardous substances;
- Lines of authority and assignment of the emergency responders' and the MTF staff's roles and responsibilities, including who will be in charge of directing the emergency response and recovery phases, medical treatment, training, and communications;
- Plans for managing emergency treatment of non-contaminated patients;
- Definition of small and large hazardous substance spills and releases;
- Designation of a decontamination team and affected emergency department staff (for example, physicians, nurses, aides, and support personnel required to respond in an emergency);
- Designation of decontamination areas and decontamination procedures;
- Waste-disposal procedures;
- Inventory of PPE, decontamination equipment and supplies, and procedures for replenishing these items. The Joint Commission recommends that healthcare facilities review and update these inventories at least annually;
- Staff members' use of proper PPE based on potential and existing hazards, routes of exposure, degree of contact with a hazardous substance, and specific tasks to be performed;
- Prevention of cross-contamination of airborne substances via the MTF's ventilation system;
- Air monitoring to verify that the MTF is safe for occupancy following treatment of contaminated patients;
- Safe distances and areas of refuge;
- Site security and control;
- Evacuation routes and procedures;
- Designation of alternative facilities that could be used to provide treatment in case the MTF's emergency department becomes contaminated;
- Pre-emergency exercises, including practice using the Incident Command System with local emergency response organizations; and
- Post-emergency critique and follow-up of exercises and real-life events.

The HAZWOPER training must be based on the staff members' duties and responsibilities, the areas they are assigned to work, and the likelihood they will come in contact with hazardous substances or contaminated patients. They may complete initial and annual refresher training by sections or parts, as their schedule permits. What's more important is that staff members complete initial training before participating in an actual emergency, that they are trained sufficiently to allow them to perform their expected job duties in a safe and healthful manner, and that they complete refresher training each year thereafter.

Initial HAZWOPER training should include hands-on exercises (for example, putting on and taking off PPE, using air-monitoring equipment, and decontaminating patients). Experienced staff members may be exempted from initial training attendance when they can demonstrate the required skills and knowledge. However, the MTF must validate and document their competency.

Staff members may complete annual refresher training by attending computer-based training provided that—

- The covered topics are relevant to their roles and responsibilities;
- They have access to a qualified trainer via a telephone hotline or electronic mail to ask questions; and
- The training includes an assessment of staff members' hands-on performance of work tasks that they will perform.

Staff members must stay up-to-date with their annual refresher training. Should they miss a refresher course, they should attend the next available course. If a substantial amount of time has passed since they attended initial or refresher training, then they should repeat the initial training. The time frame within which it would be necessary to have a staff member repeat initial training should be determined on a case-by-case basis.

First Responder Awareness Level Training (Title 29 CFR 1910.120 (q)(6)(i))

Staff members working in areas that are generally free of contamination but may come in contact with hazardous substances and/or contaminated victims, their belongings, equipment, or waste must, at a minimum, attend Awareness Level Training. Some examples of staff members that fit in this group are—

- Security personnel that are likely to witness or discover a hazardous substance spill or release and whose only role is to initiate an emergency response by notifying the proper authorities;

- The first point of contact that contaminated victims would encounter when they self-report to the MTF;
- Emergency Department staff, including physicians, nurses, clerks, and security personnel, that support the emergency response but work outside the decontamination zone since they are not expected to come in contact with contaminated victims or any items contaminated by hazardous substances; and
- Personnel responsible for setting up the decontamination system before victims arrive at the MTF.

OSHA requires first responders at the awareness level to receive sufficient training or to have sufficient experience to—

- Understand what hazardous substances are and their risks in an emergency;
- Understand potential outcomes of an emergency involving hazardous substances;
- Recognize the presence of hazardous substances in an emergency;
- Identify the hazardous substance if possible;
- Recognize the need for additional resources;
- Understand their roles and responsibilities as a first-responder awareness individual;
- Avoid physical contact with contaminated patients and protect themselves from exposure to hazardous substances during an incident;
- Report the incident to appropriate personnel;
- Notify your supervisor and safety officer of possible contamination; and
- Allow properly trained staff to isolate and decontaminate the patient.

OSHA does not list a minimum number of hours of Awareness Level Training for staff members, but training should be sufficient to make sure they acquire the required knowledge and skills. Staff members designated to respond to hazardous substance incidents must attend refresher training or demonstrate their competency every year thereafter.

First Responder Operations Level Training, Title 29 CFR Part 1910.120 (q)(6)(ii)

This training is designed to train employees (for instance, fire fighters, emergency response teams, and ambulance service personnel) who respond to incident sites to contain hazardous substance spills and releases from a safe distance, keep spills from spreading, and prevent exposures. These employees must receive sufficient training or have sufficient experience to—

- Demonstrate competency as required by Awareness Level Training;
- Understand basic hazard and risk assessment techniques;
- Select and use proper PPE;

- Perform basic control, containment and confinement operations;
- Perform basic decontamination procedures; and
- Understand local SOPs and termination procedures.

OSHA uses the term “First Receivers” to describe the designated staff members that work in the decontamination zone to provide treatment, triage, decontamination, or other services to contaminated victims and other support personnel that are likely to come in contact with contaminated victims at the MTF. First receivers are a subgroup of first responders at the operations level.

Training requirements and PPE for first receivers differ from the requirements for first responders because the first receivers’ exposures are limited to the hazardous substances transported to the MTF on the victims’ skin, hair, clothing, or personal effects. The PPE worn must be sufficient for the anticipated type and exposure levels resulting from the HAZMAT incident. Anticipated exposures include airborne or dermal absorption hazards from a patient whose skin or clothing has come in contact with hazardous substances.

At a minimum, first receivers must know first-responder awareness level topics, and must be able to—

- Understand the ERP and EOP and their role in it;
- Understand the safety and health risks that may be present in the decontamination zone;
- Select and use proper PPE, including respiratory protection; and
- Implement patient decontamination procedures.

First responders and first receivers must complete at least 8 hours of initial training that covers topics relevant to their job duties. Additional training may be required to confirm staff members acquire the required knowledge and skills. Furthermore, staff members must attend refresher training, or they may demonstrate their competency every year thereafter. OSHA does not list a minimum number of hours of annual refresher training. Army MTFs should evaluate first receivers’ competencies during pre-emergency exercises.

Skilled Support Personnel (First Receiver) Title 29 CFR 1910.120 (q)(4)

Staff members and support personnel that are not expected to participate in the emergency response but are called in at the last minute to provide assistance must receive an initial briefing at the time of the incident. The briefing must include instruction in—

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- Wearing of proper PPE;
- The hazards involved;
- Duties to be performed; and
- Additional health and safety precautions that they need to follow.

There is no required number of hours for the length of briefings for skilled support personnel.

Army MTFs must be prepared to respond to hazardous substance incidents whether they occur within their facilities or within the communities served. Preparation requires written response plans that are based on each MTF's mission, HVA, and the appropriate OSHA regulations. In addition, staff members must be able to recognize when a hazardous substance spill or release has occurred, and they must know their roles and responsibilities in such an emergency. Classroom and hands-on training along with participation in pre-emergency exercises provide staff members the required knowledge and skills needed to safely respond to hazardous substance incidents and to decontaminate and treat victims without endangering themselves and others.

Prepared by: Industrial Hygiene and Medical Safety Management Program and Industrial Hygiene Field Services Program

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APPENDIX A

REFERENCES

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