PDHonline Course C536 (8 PDH)

OSHA Required Training – Emergency Response

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OSHA Required Training

Emergency Response

OSHA REQUIRED TRAINING
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– EXECUTIVE SUMMARY –

I. OSHA Overview

The Occupational Safety and Health Administration (OSHA) was created by the United States Congress in 1971 as a federal agency in the Department of Labor. OSHA's mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. Since its inception, OSHA has helped to cut workplace fatalities by more than 60 percent and occupational injury and illness rates by 40 percent. At the same time, U.S. employment has doubled from 56 million workers at 3.5 million worksites to more than 115 million workers at 7.2 million sites.

II. Introduction to Emergency Response

An emergency is a situation that poses an immediate risk to health, life, property or environment. Most emergencies require urgent intervention to prevent a worsening of the situation, although in some situations, mitigation may not be possible and response agencies may only be able to offer palliative care for the aftermath. While some emergencies are self evident (such as a natural disaster that threatens many lives), many smaller incidents require the subjective opinion of an observer (or affected party) in order to decide whether it qualifies as an emergency. While the exact timing of an emergency cannot be predicted, they can be anticipated and the actions taken after they occur can be planned. This is the essence of emergency response.

III. OSHA's Regulatory Standards for Emergency Response

An emergency can occur in any workplace at any time. The appropriate response in a timely manner is critical to protect health and/or life of affected employees. To assist in the pre-emergency planning and to ensure correct emergency response, OSHA has developed an expansive array of regulatory standards covering a variety of work activities and processes in various industries. Affected industries include the following:

- General Industry 29 CFR 1910
- Shipyard Employment 29 CRF 1915
- Marine Terminals 29 CFR 1917
- Longshoring 29 CFR 1918

- Construction 29 CFR 1926
- Agriculture 29 CFR 1928

It should be noted, that twenty-five states, Puerto Rico and the Virgin Islands have OSHA-approved State Plans and have adopted their own standards and enforcement policies. For the most part, these States adopt standards that are identical to Federal OSHA. However, some States have adopted different standards applicable to this topic or may have different enforcement policies.

IV. Course Overview

This course is a compilation of various OSHA documents related to emergency response. The intent is to provide comprehensive documentation of OSHA regulatory requirements related to emergency response for the above mentioned industries. Employee training requirements pursuant to these regulations are detailed where applicable. Additionally, guidance to other OSHA reference materials is also provided by topic. While the documents conveyed in this course material are applicable to the vast majority of workplaces, some documents related to health care situations were omitted due to their intensively specific nature. This omitted material may be obtained via the OSHA web page.

Crossing the boundaries between specific industries, extensive information is provided related to:

- Emergency response planning;
- Emergency exit routes;
- Workplace evacuations;
- Fire safety;
- Fire extinguisher guidelines;
- Hazardous waste operations;
- Protecting security personnel; and,
- National response framework.

Occupational
Safety and Health
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Principal Emergency Response and Preparedness

Requirements and Guidance

OSHA 3122-06R 2004

Employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This publication provides a general overview of a particular standards-related topic. This publication does not alter or determine compliance responsibilities which are set forth in OSHA standards, and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.

Principal Emergency Response and Preparedness Requirements and Guidance

Occupational Safety and Health Administration

U.S. Department of Labor

OSHA 3122-06R
2004

Contents

Introduction

The importance of an effective workplace safety and health program cannot be overemphasized. There are many benefits from such a program, including increased productivity, improved employee morale, reduced absenteeism and illness, and reduced workers' compensation rates. Unfortunately, workplace accidents and illnesses still occur in spite of efforts to prevent them, and proper planning is necessary to effectively respond to emergencies.

Several Occupational Safety and Health Administration (OSHA) standards explicitly require employers to have emergency action plans for their workplaces. Emergency preparedness is a well-known concept in protecting workers' safety and health. To help employers, safety and health professionals, training directors, and others, the OSHA requirements for emergencies are compiled and summarized in this booklet.

This publication provides a generic, non-exhaustive overview of OSHA standards for emergencies. It is not intended to alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Please review the current OSHA standards applicable to your work operations to ensure your compliance.

NOTE: The *Americans with Disabilities Act* (ADA) imposes specific obligations on employers relative to employment of individuals with disabilities. The United States Equal Employment Opportunity Commission's website provides employer resources for addressing ADA requirements in private workplaces, including "Enforcement Guidance on Reasonable Accommodations." The Job Accommodations Network publication *Emergency Evacuation Procedures for Employees with Disabilities* provides planning information and resources on emergency procedures for employees with disabilities.

Background

The U.S. Congress passed the *Superfund Amendments and Reauthorization Act* (SARA) in 1986. This legislation included the *Emergency Planning and Community Right to Know Act* (Title III), which laid the foundation for communities to prepare for and respond to emergency incidents involving hazardous substances. Title III also requires employers to assist in planning and to provide accurate information about the hazardous substances or chemicals they control.

In 1989, OSHA issued a final rule on Hazardous Waste Operations and Emergency Response (HAZWOPER) to work hand-in-hand with SARA Title III. OSHA's rule, 29 CFR 1910.120, establishes safety and health requirements for employers for the protection of employees and requires the development of an emergency response plan. This plan is to be integrated with local, state, and Federal agency plans for local community emergency preparedness.

A second "significant" emergency planning law was enacted in 1990. The *Clean Air Act Amendments* (CAAA) gave the Environmental Protection Agency (EPA) and OSHA more responsibilities for preventing major chemical emergencies. In response to this legislation, OSHA issued the Process Safety Management (PSM) of Highly Hazardous Chemicals standard

(29 CFR 1910.119) in 1992. The standard requires employers to establish a PSM program to prevent major chemical workplace emergencies and to implement an emergency action plan.

The requirements of the HAZWOPER and PSM standards are provided in this publication. In addition, the publication includes emergency action plan and fire prevention plan requirements and emergency planning and response requirements in many other OSHA standards. In order to have an effective safety and health program, it is necessary to develop and implement emergency preparedness and response requirements that are applicable to the workplace.

The 26 states that operate OSHA-approved state plan programs set and enforce standards, such as HAZWOPER and PSM, and the other emergency planning and response requirements, which are identical to or at least as effective as Federal OSHA standards. While this publication can provide useful guidance to all employers and employees, if you are in a state with an OSHA-approved state program, you should contact the state program for specific compliance requirements.

Please note that the EPA has Risk Management Program (RMP) and Community Right-to-Know regulations that address releases of dangerous chemicals. Information is available on the EPA's website at http://www.epa.gov/epaoswer/hotline/rmp.htm.

Using This Publication

To use this publication effectively, you should review the standards identified for your industrial sector(s) and determine if they apply to your workplace. Each standard listed in this publication includes a general description of the standard's scope. Once you have determined which standards apply to your workplace, review the requirements and resources identified in this publication for each applicable standard. To assist you in better understanding each standard, this publication summarizes the essential program, procedural, equipment, and training requirements in each of the standards identified. The publication also provides online resources, including active Internet links, which discuss compliance information for implementing critical requirements. While viewing this online you can click on any of the highlighted words and phrases, and be linked to online materials that define or help clarify the word or phrase as it is used in the standard.

Please note that, in developing this publication, the standards most applicable to emergency response and preparedness were included. Standards that were deemed not directly or as likely to apply to emergencies were not included. Therefore, while the majority of standards that include emergency-related requirements are addressed in this document, other OSHA standards could be applicable to a particular response action.

Publication Organization

This publication is organized so that all standards for a particular industry are grouped together. The emergency-related requirements included in this publication are grouped in the following sections: I. General Industry (29 CFR 1910), II. Shipyard Employment (29 CFR 1915), III. Marine Terminals (29 CFR 1917), IV. Longshoring (29 CFR 1918), V. Construction (29 CFR 1926), and VI. Agriculture (29 CFR 1928). Please note that a single employer could be covered by standards for more than one industry. For example, an employer in a manufacturing plant is primarily covered by 29 CFR 1910 but would be covered by 29 CFR 1926 in cases where employees are performing construction work such as erecting a new building or demolishing an old structure.

Within each group of industry standards, the standards are further organized into sections. These sections outline the emergency-related requirements as follows:

- ***General Requirements for Workplaces***
  These standards are generally required of all workplaces within the industry. Every employer must comply with these requirements or the parallel state plan requirements, except where specifically exempted.

- ***Additional Requirements for Workplaces Referenced in Other Requirements***
  The standards listed in this section are those that are applicable to the workplace when employer compliance is required by another OSHA standard. For example, a grain handling facility employer is required by the grain handling facility standard (1910.272) to implement an emergency action plan meeting the requirements of 1910.38. [Note: No additional requirements for Shipyard Employment, Marine Terminals and Longshoring are referenced in other requirements.]

- ***Additional Requirements for Specific Workplaces/Operations***
  The standards that cover specific workplaces, operations, or processes are listed in this section. It is important to note that 29 CFR 1910.5(c) provides that these specific standards shall prevail over any other general standard which might otherwise be applicable to the same condition, practice, means, method, operation, or process. The general standards do apply, however, to the extent that none of the particular standards are applicable.

- ***Requirements that Support Emergency Response and Preparedness***
  In addition to the emergency requirements contained in the sections above, this section includes standards that are likely to be applicable in an emergency situation. In any chemical-related emergency, for example, the personal protective equipment requirements are likely to be applicable. Likewise, for emergencies involving injured persons, the requirements of the bloodborne pathogens standard may apply.

I. General Industry (29 CFR 1910) Requirements for Emergency Response and Preparedness

A. General Requirements for Workplaces

1. 29 CFR 1910.36 *Design and construction requirements for exit routes*

This standard establishes requirements for the proper design and construction of exit routes. Requirements cover construction materials, opening dimensions, accessibility conditions, capacity, and special considerations for exit routes that are outside of a building.

Procedural, Program, and/or Equipment Requirements	Make exit route design permanent. Ensure that the number of exit routes is adequate based on the number of employees, the size of the building, its occupancy, and the arrangement of the workplace. Separate an exit route from other workplace areas with materials that have the proper fire resistance-rating for the number of stories the route connects. Ensure that exit routes meet width and height requirements. The width of exit routes must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route. Ensure that doors used to access exit routes have side hinges and swing in the direction of travel (depending on occupancy and hazard areas). Design exit routes that lead to an outside area with enough space for all occupants. An outdoor exit route is permitted but may have additional site-specific requirements.
Assistance Tools	Standard – 29 CFR 1910.36 *Design and construction requirements for exit routes.* E-Tools – *Evacuation Plans and Procedures – Design and Construction Requirements for Exit Routes.* Fact Sheet – *Emergency Exit Routes Fact Sheet*. National Fire Protection Agency (NFPA) Code – *Life Safety Code NFPA 101*.

2. 29 CFR 1910.37 *Maintenance, safeguards and operational features for exit routes*

This standard establishes requirements for exit route lighting, marking, and non-flammable material maintenance. It also sets requirements for employee alarm systems and procedures for working during construction, repair, or alteration. Maintaining exit route standards will prepare the workplace for a successful emergency evacuation.

Procedural, Program, and/or Equipment Requirements	Maintain the fire-retardant properties of paints and solutions that are used in exit routes. Ensure that required exit routes and fire protections are available and maintained, especially during repairs and alterations. Ensure that employee alarm systems are installed, operable, and in compliance with 29 CFR 1910.165 (**Note**: See Section I.A.5.). Direct employees through exit routes using clearly visible signs. These signs must meet the required letter height and illumination specifications. When openings could be mistaken for an exit, post appropriate signs stating "NOT AN EXIT." Arrange exit routes so that employees are not exposed to the dangers of high hazard areas. Exit routes must be free and unobstructed. Prevent obstructions, such as decorations, furnishings, locked doorways, and dead-ends within exit routes.
Assistance Tools	Standard – 29 CFR 1910.37 *Maintenance, safeguards, and operational features for exit routes*. Interpretation Letter – February 1, 1991, Mr. Sanford B. White, *Use of Self-luminous and electroluminescent exit signs.* E-Tools – *Evacuation Plans and Procedure-Maintenance, Safeguards, and Operational Features for Exit Routes*. Checklist – *Alarm System Checklist.* National Fire Protection Agency (NFPA) Code – *Life Safety Code NFPA 101*.

3. 29 CFR 1910.151 *Medical services and first aid*

To handle potential workplace injuries, employers must ensure that medical personnel and adequate first aid supplies are available to workers. The selection of these resources must be based on the types of hazards in the workplace.

Procedural, Program, and/or Equipment Requirements	Ensure that medical personnel are ready and available for advice and consultation on the overall employee safety and health condition in the workplace. Provide trained personnel and adequate first aid supplies to render first aid when a medical facility is not in near proximity to the workplace. Provide suitable facilities for immediate emergency use if exposure to injurious or corrosive materials is possible.
Training Requirements	Adequately train personnel expected to administer first aid.

Assistance Tools	Standard – 29 CFR 1910.151 *Medical services and first aid.* Interpretation Letter – April 18, 2002, Mr. John Mateus, *Clarification of 1910.151 Medical Services and First Aid.* Interpretation Letter – January 6, 1995, Larry M. Starr, PhD, *The review of first aid training programs.* Interpretation Letter – November 1, 2002, Jennifer Shishido, *Additional clarification of using ANSI Z358.1 as guidance to comply with 1910.151(c).* Interpretation Letter – November 19, 1992, Mr. Shawn L. O'Mara, *Response time and "in near proximity" requirements.* Other Standards – American National Standards Institute (ANSI) Standard Z358.1 *Emergency Eyewash and Shower Equipment.*

4. 29 CFR 1910.157 *Portable fire extinguishers*

Employees who use portable fire extinguishers can often put out small fires or control a fire until additional help arrives. Before an emergency occurs, employers must decide whether employees are authorized to use fire extinguishers or must immediately evacuate (29 CFR 1910.38). The following section applies to portable fire extinguisher placement, use, maintenance, and testing.

Procedural, Program, and/or Equipment Requirements	Select and distribute portable fire extinguishers based on the class, size, and degree of workplace fire hazards. Mount, locate, and identify the extinguishers so they are readily accessible in an emergency and will not subject employees to potential injury. Provide only approved portable fire extinguishers. Maintain fire extinguishers. Maintenance includes monthly visual inspections, hydrostatic testing, annual internal examinations, and all associated documentation. Ensure that the travel distance from employee to the nearest extinguisher is appropriate for the fire class. Exemptions may apply when employees are expected to evacuate the workplace in an emergency action plan that meets 29 CFR 1910.38 standards. This option may effectively minimize the potential for fire-related injuries but would not authorize employees to use extinguishers.
Training Requirements	If portable fire extinguishers are provided for employee use, provide an educational program at initial employment and at least annually thereafter. Provide education specific to any equipment employees are expected to use as part of an emergency action plan. Provide training upon initial assignment and at least annually thereafter.

Assistance Tools	Standard – 29 CFR 1910.157 *Portable fire extinguishers*. Interpretation Letter – June 12, 2000, Mr. Hugh Erwin, *Soda acid and inverted foam extinguishers are not approved portable firefighting equipment.* Referenced Standards – 29 CFR 1910.155 *Scope, application and definitions applicable to this subpart*. E-Tools *Evacuation Plans and Procedures – Evaluating the Workplace - Portable Fire Extinguishers.* National Fire Protection Agency (NFPA) Code – *Standard for Portable Fire Extinguishers NFPA 10.*

5. 29 CFR 1910.165 *Employee alarm systems*

Employee alarm systems alert employees to begin implementing emergency action. This section applies when another OSHA standard requires an alarm to notify employees of an emergency. For example, standards that specifically require or reference alarm systems include: 29 CFR 1910.37, 1910.38, 1910.66, 1910.106, 1910.120, 1910.157, 1910.160, 1910.161, 1910.162, and 1910.164.

Procedural, Program, and/or Equipment Requirements	Provide a distinctive and perceivable alarm system for emergency action or safe evacuation. Specific requirements may apply if the alarm system includes telephones/manual operations, the workplace has 10 or fewer employees, or alarms serve more than one purpose. Ensure that all equipment used for alarm systems is approved and spare components are available. Test alarms at the frequency required. Follow special safety requirements for testing or restoring alarms.
Training Requirements	Establish procedures and instruct employees on when and how to sound an alarm and notify emergency personnel, and what each alarm type means.
Assistance Tools	Standard – 29 CFR 1910.165 *Employee alarm systems.* E-Tools – *Evacuation Plans and Procedures -- Workplace Evaluation - Alarm Systems.* Interpretation Letter – January 23, 1991, Mr. David A. Kruger, *Employee emergency alarm systems.*

B. Additional Requirements for Workplaces Referenced in Other Requirements

1. 29 CFR 1910.38 *Emergency action plans*

To prepare for any contingency, an emergency action plan establishes procedures that prevent fatalities, injuries, and property damage. An emergency action plan is a workplace requirement when another applicable standard requires it. The following standards reference or require compliance with 1910.38: 29 CFR 1910.119, 1910.120, 1910.157, 1910.160, 1910.164, 1910.272, 1910.1047, 1910.1050, and 1910.1051.

Procedural, Program, and/or Equipment Requirements	Identify possible emergency scenarios based on the nature of the workplace and its surroundings. Prepare a written emergency action plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees. At a minimum, the plan must include: • The fire and emergency reporting procedures; • Procedures for emergency evacuation, including the type of evacuation and exit routes; • Procedures for those who remain to operate critical operations prior to evacuation; • Procedures to account for employees after evacuation; • Procedures for employees performing rescue and medical duties; and • Names of those to contact for further information or explanation about the plan.
Training Requirements	Review the emergency action plan with each employee when the plan is developed, responsibilities shift, or the emergency procedures change. Provide training to employees who are expected to assist in the evacuation.
Assistance Tools	Standard – 29 CFR 1910.38 *Emergency Action Plan.* Directive – CPL 02-01-037 *Compliance Policy for Emergency Action Plans and Fire Prevention Plans.* E-Tools – *OSHA's Expert System – Emergency Action Plan*. E-Tools – *Evacuation Plans and Procedures – Emergency Action Plan Checklist.* E-Tools – *Evacuation Plans and Procedures – Evacuation Elements.* Fact Sheet – *Planning and Responding to Workplace Emergencies.* Fact Sheet – *Evacuating High-Rise Buildings.* Other Agency Resources – *EPA Local Emergency Planning Committee (LEPC) Database*.

2. 29 CFR 1910.39 *Fire prevention plans*

This plan requires employers to identify flammable and combustible materials stored in the workplace and ways to control workplace fire hazards. Completing a fire prevention plan and reviewing it with employees reduces the probability that a workplace fire will ignite or spread.

A fire prevention plan is a workplace requirement when another applicable standard requires it. The following standards reference or require compliance with 1910.39: 29 CFR 1910.157, 1910.1047, 1910.1050, and 1910.1051.

Procedural, Program, and/or Equipment Requirements	Prepare a written fire prevention plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees. Develop a plan that includes • Major fire hazards, hazardous material handling and storage procedures, ignition sources and controls, and necessary fire protection equipment; • How flammable and combustible waste material accumulations will be controlled; • Maintenance of heat-producing equipment to reduce ignition sources; • Names or job title of persons to maintain equipment to reduce ignition sources and fire potential; and • Names or job title of persons to help control fuel source hazards.
Training Requirements	Inform employees about relevant fire hazards and self-protection procedures in the fire prevention plan when they are initially assigned to a job.
Assistance Tools	Standard – 29 CFR 1910.39 *Fire Prevention Plans.* Directive – CPL 02-01-037 *Compliance Policy for Emergency Action Plans and Fire Prevention Plans.* E-Tools – *Evacuation Plans and Procedures – Fire Prevention Plan Requirements.* Other Agency Resources – National Fire Protection Agency (NFPA) Code – *Life Safety Code NFPA 101*.

C. Additional Requirements for Specific Workplaces/Operations

1. 29 CFR 1910.66 *Powered platforms for building maintenance*

This standard covers powered platform installations permanently dedicated to interior or exterior building maintenance of a specific structure or group of structures. It includes requirements for an emergency action plan and employee emergency action plan training.

Procedural, Program, and/or Equipment Requirements	Develop and implement a written emergency action plan for each kind of working platform operation. At a minimum, the plan must explain: • The emergency procedures that are to be followed in the event of a power failure, equipment failure, or other emergencies that may be encountered; and • That employees inform themselves about the building emergency escape routes, procedures, and alarm systems before operating a platform. If a platform contains overhead structures that restrict emergency egress, ensure that a secondary wire rope suspension system is provided. Provide a horizontal lifeline or a direct connection anchorage, as part of a fall arrest system, for each employee on such a platform.
Training Requirements	Train all employees who operate working platforms on the emergency action plan procedures and the parts of the plan the employees must know to protect themselves in the event of an emergency. This training must be provided upon initial assignment and whenever the plan is changed.
Assistance Tools	Standard – 29 CFR 1910.66 *Powered platforms for building maintenance.*

2. 29 CFR 1910.111 *Storage and handling of anhydrous ammonia*

This standard covers the design, construction, location, installation, and operation of anhydrous ammonia systems including refrigerated ammonia storage systems. Ammonia manufacturing plants and refrigeration plants where ammonia is used solely as a refrigerant are, however, not covered.

Procedural, Program, and/or Equipment Requirements	For stationary storage installations, provide at least two suitable gas masks with ammonia canisters for either emergency response or evacuation purposes. Provide a self-contained breathing apparatus for respiratory protection in concentrated ammonia atmospheres. For refrigerated storage systems, ensure that each compressor drive has an emergency source of power unless other measures can be taken to safely vent the vapors while the refrigeration system is not operating. For refrigerated storage systems, ensure that an emergency alarm system is installed that will activate in the event that the container(s) reach the maximum allowable operating pressure. For refrigerated storage systems, ensure that an emergency alarm system and shut-off are installed in the condenser unit that will activate in the event that there is an excess discharge pressure.

Assistance Tools	Standard – 29 CFR 1910.111 *Storage and handling of anhydrous ammonia*. Interpretation Letter – February 7, 1998, Mr. Jesse L. McDaniel, *Respiratory Protection for Anhydrous Ammonia Storage Installations*.

3. 29 CFR 1910.119 *Process safety management (PSM) of highly hazardous chemicals*

This section focuses on preventing or minimizing consequences from a catastrophic release of toxic, reactive, flammable, or explosive chemicals. Processes are covered by this standard when they involve quantities of highly hazardous chemicals equal to or greater than those listed in 1910.119 Appendix A, they involve flammable liquid or gas quantities greater than 10,000 pounds, or they involve the manufacture of explosives or pyrotechnics. Consult 1910.119(a) for special considerations and process exemptions. Successful PSM emergency planning relies on implementing requirements from 29 CFR 1910.38 and/or 1910.120(q).

Procedural, Program, and/or Equipment Requirements	Conduct a Process Hazard Analysis (PHA) for each covered process, and update and revalidate the PHA every 5 years. Incorporate emergency shutdown actions and operations into the written operating procedures for each process. Include conditions that require emergency action and the qualified operator responsible for performing these procedures. Implement an emergency action plan for the facility as described in 29 CFR 1910.38. Maintain the mechanical integrity of PSM emergency systems and alarms. If employees are expected to handle an emergency release rather than promptly evacuate, implement an emergency response plan according to 1910.120(q). Provide proper response and personal protective equipment for emergency responders under the plan.
Training Requirements	Review facility PSM emergency shutdown and response procedures with employees. Provide additional training to employees who provide response actions covered by 29 CFR 1910.120(q). As a host employer, clearly communicate emergency action plans with contractors. Contract employers must ensure that their employees are instructed in potential fire, explosion, or toxic release hazards related to their jobs.

Assistance Tools	Standard – 29 CFR 1910.119 *Process Safety Management of Highly Hazardous Chemicals.* Standard Appendix – 1910.119 Appendix A – *List of Highly Hazardous Chemicals, Toxics and Reactives (Mandatory).* Standard Appendix – 1910.119 Appendix C – *Compliance Guidelines and Recommendations for Process Safety Management (Nonmandatory).* Preamble to Final Rule – Process Safety Management of Highly Hazardous Chemicals; Explosives and Blasting Agents - *III. Summary and Explanation of the Final Rule.* Interpretation Letter – December 7, 1995 - Mr. J.B. Evans, *OSHA's Standard Process Safety Management of Highly Hazardous Chemicals.*

4. 29 CFR 1910.120 *Hazardous waste operations and emergency response; paragraphs (b), Safety and health program, through (o), New technology programs*

This standard covers hazardous substance cleanup operations and RCRA corrective actions (29 CFR 1910.120, (a)(1)(i) through (a)(1)(iii)). Emergency planning and response are required safety and health program elements that help minimize employee exposure and injury.

Procedural, Program, and/or Equipment Requirements	If employees are to immediately evacuate in an emergency, develop an emergency action plan in accordance with 29 CFR 1910.38. If all employees are to evacuate and an emergency action plan is developed, the employer is exempted from 1910.120(l). If employees may assist in handling the emergency, then the following requirements apply. As a separate section of the site safety and health plan, develop a written emergency response plan. The plan must be implemented before site operations begin and should be integrated with those of other local, state, and Federal agencies. Identify emergency response personnel and responsibilities in the site program's organizational structure. Include emergency response training details in the comprehensive site work plan. Identify personal protective equipment (PPE) and other equipment for emergency response in the emergency response plan. Install alarm systems that meet requirements of 29 CFR 1910.165. Share site-specific emergency response procedures with contractors and sub-contractors. Under certain circumstances, emergency response personnel may qualify for the medical surveillance program.
Training Requirements	Train employees assigned to respond to hazardous emergencies at cleanup sites on how to respond to expected emergencies. Regularly rehearse and train employees as part of the overall training program for site operations.

Assistance Tools	Standard – 29 CFR 1910.120 *Hazardous waste operations and emergency response*. Standard Appendix – 1910.120 Appendix B *General description and discussion of the levels of protection and protective gear*. Publication – OSHA 3114, *Hazardous Waste Operations and Emergency Response.* Safety and Health Topics – *Emergency Preparedness/Response.* Interpretation Letter – July 28, 1989, Richard F. Boggs, PhD, *Application of OSHA's final standard for Hazardous Waste Operations and Emergency Response.* Interpretation Letter – May 23, 1989, Mr. Lanny E. Partain, *Criteria for inclusion of workers in a medical surveillance program and training under 1910.120.* Other Agency Resources – *EPA Local Emergency Planning Committee (LEPC) Database*. Directive - CPL 02-02-071 *Technical Enforcement and Assistance Guidelines for Hazardous Waste Site and RCRA Corrective Action Clean-up Operations.*

5. 29 CFR 1910.120, paragraph (p) *Certain operations conducted under the Resource Conservation and Recovery Act of 1976 (RCRA)*

This section covers operations at treatment, storage, and disposal facilities regulated by 40 CFR Parts 264 and 265 under RCRA. A well established emergency response program is required to prepare employees for emergency response activities at these sites.

Procedural, Program, and/or Equipment Requirements	If employees are to immediately evacuate in an emergency, develop an emergency action plan in accordance with 29 CFR 1910.38. If all employees are to evacuate and an emergency action plan is developed, the employer is exempted from 1910.120(p) emergency requirements. If employees may assist in handling the emergency then the following requirements apply. Include a written emergency response plan in the employer's safety and health program. Ensure that the plan is compatible with other response agency plans and reviewed periodically to ensure currency with site conditions and information. Provide appropriate PPE and emergency equipment to respond to potential site emergencies. Install alarm systems that meet requirements of 1910.165. Depending on exposure circumstances, emergency responders may qualify for participation in the site medical surveillance program.
Training Requirements	Before an employee is required to perform response actions, provide training to a level of competence that protects themselves and other employees. Regularly rehearse the emergency response plan as part of the overall training program for site operations. Record and maintain training certifications that show employee attendance and completion of required training.

Assistance Tools	Standard – 29 CFR 1910.120 *Hazardous waste operations and emergency response.* Interpretation Letter – July 28, 1989, Richard F. Boggs, Ph.D., *Application of OSHA's Final Standard for Hazardous Waste Operations and Emergency Response.* Other Agency Resources – *EPA Local Emergency Planning Committee (LEPC) Database*.

6. 29 CFR 1910.120, paragraph (q), *Emergency response to hazardous substance releases*

This section covers hazardous substance emergency response operations regardless of the hazard location. The standard requires an emergency response plan and employee training and competency for anticipated emergencies. An incidental release of a hazardous substance is not covered by the standard.

Procedural, Program, and/or Equipment Requirements	If employees are to immediately evacuate in an emergency, develop an emergency action plan in accordance with 1910.38(a). If all employees are to evacuate and an emergency action plan is developed, the employer is exempted from paragraph 1910.120(q) emergency requirements. If employees may assist in handling the emergency, then the following requirements apply. Develop and implement a written emergency response plan that includes • Pre-emergency planning and coordination; • Personnel roles, lines of authority, training, and communication; • Emergency recognition and prevention; • Safe distances and refuge; • Site security and control; • Evacuation routes and procedures; • Decontamination procedures; • Medical treatment in emergencies; • Procedures for emergency alerting and response; • Response critiques and follow-up; and • PPE and emergency equipment. Ensure that the plan is compatible with other Federal, state, and local response agency plans and reviewed periodically for changes. The site's Local Emergency Planning Committee (LEPC) may have this information. Establish an Incident Command System (ICS) to coordinate response actions. Provide chemical protective clothing for emergency responders that is appropriate for site hazards. Provide backup and advance first aid support personnel ready to provide assistance or rescue. Provide equipment necessary for backup and first aid support personnel and transportation for medical care. Some emergency responders require medical surveillance automatically, while others may qualify only under certain exposure circumstances.

Training Requirements	Provide training to employees based on their expected duties. Train responders to one of the following levels: first responder awareness, first responder operations, hazardous materials technician, hazardous materials specialist, and on scene incident commander. Provide required training to "skilled support personnel" and "specialist employees." Ensure trainers are qualified to provide training. Provide and document annual refresher training.
Assistance Tools	Standard – 29 CFR 1910.120 *Hazardous waste operations and emergency response.* Directive – CPL 02-02-059 *Inspection Procedures for the Hazardous Waste Operations and Emergency Response Standard, 29 CFR 1910.120 and 1926.65, Paragraph (q): Emergency Response to Hazardous Substance Releases.* Directive – CPL 02-02-059, Appendix E *Releases Of Hazardous Substances That Require An Emergency Response*. Other Agency Assistance Tool – *Oil Spill Field Operations Guide ICS-OS-420-1* Other Agency Resources – *EPA Local Emergency Planning Committee (LEPC) Database*.

7. 29 CFR 1910.124 *General requirements for dipping and coating operations*

This standard establishes design, ventilation, first aid, hygiene, and maintenance requirements for dipping and coating operations.

Procedural, Program, and/or Equipment Requirements	Provide an emergency shower and eyewash station close to dipping operations. If employees work with liquids that may burn, irritate, or otherwise harm their skin, provide • Physician's approval before allowing an employee with a sore, burn, or other lesion to work in a vapor area, • Proper treatment by a designated person for skin abrasions, cuts, rashes, and open sores, • Appropriate first aid supplies near dipping and coating operations, and • Periodic exams of exposed body parts for employees who work with chromic acid.
Training Requirements	Ensure that employees know appropriate first aid procedures.
Assistance Tools	Standard – 29 CFR 1910.124 *General requirements for dipping and coating operations.*

8. 29 CFR 1910.146 *Permit-required confined spaces*

This standard requires practices and procedures to protect employees working in permit-required confined spaces (PRCS). The standard requires an evaluation to determine the existence of PRCSs, the implementation of a written permit space program, and the establishment of rescue and emergency procedures.

Procedural, Program, and/or Equipment Requirements	Provide retrieval systems or methods for non-entry rescue where feasible. Develop and implement procedures to summon rescue and emergency services to rescue entrants. Implement procedures to provide emergency services to rescued employees and prevent unauthorized personnel from attempting a rescue. Evaluate and select a rescuer based on his or her ability to effectively respond to a rescue in a timely manner, considering the hazard(s) identified and the types of permit spaces entered. Ensure that the responder is properly equipped and proficient. Provide rescuers access to all permit spaces from which rescue may be necessary, so that appropriate rescue plans are developed and rescue operations practiced. An employer whose employees provide permit space rescue and emergency services must provide PPE to employees, at no cost to those employees.
Training Requirements	Inform the rescuer(s) of potential hazards they may confront during rescue at the site. An employer whose employees provide permit space rescue and emergency services must document the training of rescuers as authorized entrants. They must also be trained in the following: • PPE, • Their assigned rescue duties, and • Basic first aid and cardiopulmonary resuscitation (CPR). (At least one so trained employee must be available during rescues). Rescuers must simulate practice rescues from actual or representative permit spaces at least annually. Attendants must be trained in the following: • The hazards that may be faced during entry, • Behavioral effects of hazards to entrants, • Maintaining count and identity of entrants, • Remaining outside the permit space during entry until relieved, • Maintaining communication with entrants to monitor and alert them if evacuation is necessary, • Monitoring activities inside and outside the space to ensure acceptable entry conditions and ordering evacuation if necessary, • Summoning rescue and other services when authorized entrants need

Training Requirements (Continued)	assistance to escape from hazards, • Taking appropriate action when unauthorized persons approach or enter a permit space, • Performing non-entry rescue according to the employer's rescue procedures, and • Restricting activities to duties that do not interfere with the attendant's primary responsibility to monitor and protect authorized entrants.
Assistance Tools	Standard – 29 CFR 1910.146 *Permit-required confined spaces.* Standard Appendix – 1910.146 Non-Mandatory Appendix F, *Rescue Team or Rescue Service Evaluation Criteria.* Interpretation Letter – May 9, 1994, Battalion Chief Chase Sargent, *Permit Required Confined Space Standard as it relates to rescue services.*

9. 29 CFR 1910.156 *Fire brigades*

When an employer establishes a fire brigade to respond to workplace fires, it must meet organizational, training, and personal protective equipment requirements. This section applies to fire brigades, industrial fire departments and private or contractual type fire departments. It does not apply to airport crash rescue or forest fire fighting operations.

Procedural, Program, and/or Equipment Requirements	Prepare and maintain a fire brigade written organizational statement. Document fire brigade member training information in the organizational statement. Ensure employees expected to fight fires are physically capable to perform assigned duties. Inspect and maintain fire fighting equipment annually. Inspect respirators and fire extinguishers monthly. Remove and replace damaged equipment. Supply protective clothing with components to protect the head, body, and extremities at no cost to the employee. Ensure fire brigade members are provided with and use compliant respirators.
Training Requirements	Provide training in the amount and frequency necessary to prepare members for their expected duties and any special hazards they may encounter. Ensure the quality of fire brigade training is equivalent to the training provided by the specified fire training schools referenced in the standard.
Assistance Tools	Standard – 29 CFR 1910.156 *Fire Brigades.* Supporting Statement for Paperwork Reduction Act 1995 Submissions – *Fire brigades (Organizational Statement).* Interpretation letter – February 22, 1991, Mr. Richard H. Timms, *Respirators for fire-fighters.*

Assistance Tools (Continued)	Interpretation Letter – April 26, 2002, Mr. Steve Boykin, *Training requirements for fire brigade members.* Interpretation Letter – June 20, 1997, Regional Administrators, *SCBA Cylinder Interchangeability*. National Fire Protection Agency (NFPA) Code – *Life Safety Code NFPA 101*. National Fire Protection Agency (NFPA) Code – *Standard on Comprehensive Occupational Medical Program for Fire Departments NFPA 1582.*

10. 29 CFR 1910.262 *Textiles*

This section applies to textile machinery, equipment, and other plant facility characteristics except processes used exclusively in synthetic fiber manufacturing.

Procedural, Program, and/or Equipment Requirements	Supply a copious and flowing supply of fresh, clean water wherever acids or caustics are used. When hazards are present or likely to be present, select and use PPE in accordance with 1910.132, 1910.133, and 1910.134.
Assistance Tools	Standard – 29 CFR 1910.262 *Textiles.* Standard – 29 CFR 1910.5(c) *Applicability of the Standards.*

11. 29 CFR 1910.266 *Logging operations*

Logging operations include felling and moving trees or logs from the stump to the delivery point. The risk of injury increases with dangerous environmental conditions and when worksites do not have immediate accessibility to health care facilities.

Procedural, Program, and/or Equipment Requirements	Provide sufficient and adequate first aid kits for worksites and transport vehicles. Provide sufficient kits based on the number of employees, anticipated hazards, and worksite isolation. Maintain contents of each first aid kit in a serviceable condition.
Training Requirements	Provide and keep current minimum first aid and CPR training for each supervisor and employee.

Assistance Tools	Standard – 29 CFR 1910.266 *Logging Operations.* Standard – 29 CFR 1910.266 Appendix A *First-Aid Kits (Mandatory).* Standard – 29 CFR 1910.5(c) *Applicability of the Standards.* OSHA Website Safety and Health Topics – *Logging.* E-Tools – *Logging eTool.*

12. 29 CFR 1910.268 *Telecommunications*

This section applies to all aspects of work performed at telecommunications centers and at telecommunications field installations. This includes outdoor and indoor locations.

Procedural, Program, and/or Equipment Requirements	Do not perform tree work during storm or emergency conditions. When an emergency condition develops due to tree operations, implement procedures to suspend work and notify the electric utility system operator/owner. If work includes entry into a manhole occupied jointly by telecommunication and electric utilities, or if there is a potential that a safety hazard exists, provide an employee who is immediately available to render first aid. Provide quick-drenching and/or eye-flushing facilities for battery handling areas. Provide first aid kits approved by a consulting physician, ensuring the kits are readily accessible, inspected monthly, and replenished as necessary.
Training Requirements	Provide employees with appropriate training on emergency situation procedures and first aid (including instruction in artificial respiration). Train employees working with storage batteries on emergency procedures for acid spills. Maintain proper training certifications for employment duration.
Assistance Tools	Standard – 29 CFR 1910.268 *Telecommunications.*

13. 29 CFR 1910.269 *Electric power generation, transmission and distribution*

This section covers the operation and maintenance of electric power generation, control, transformation, transmission, and distribution lines and equipment.

Procedural, Program, and/or Equipment Requirements	Ensure that an employee with training is immediately available outside an enclosed space with potential hazards and ready to give emergency assistance and first aid. If energized electric equipment is contained in a manhole where work is being performed, ensure that the attendant is also trained to provide CPR. Provide equipment to ensure the prompt and safe rescue of employees from enclosed spaces. Provide medical care and first aid as required in 29 CFR 1910.151(b) (**Note:** See Section I.A.3.). Place supplies in weatherproof containers if the supplies could be exposed to weather. Inspect and maintain first aid kits often enough, at least annually, to ensure replacement of needed or expired items. Provide water or showers for emergency use when chemically cleaning boilers and pressure vessels in power generating plants. Provide emergency repair kits near the shelter or enclosure for prompt repair of leaks in lines, equipment, or containers of chlorine systems.
Training Requirements	Train employees in emergency procedures applicable to their work, such as pole top and manhole rescue. Train sufficient employees in first aid and CPR, when working on or near exposed lines or equipment at 50 volts or more.
Assistance Tools	Standard – 29 CFR 1910.269 *Electric power generation, transmission, and distribution.* Interpretation letter – February 22, 1999, Richard S. Terrill, *CPR/first-aid training and working along provisions.* Interpretation letter – February 13, 1997, *Electric power generation, transmission, and distribution standard regarding pole-top rescue.*

14. 29 CFR 1910.272 *Grain handling facilities*

Grain handling facility regulations cover a wide range of grain handling operations and include emergency planning and training requirements. Some typical emergencies that may occur at these facilities include fires, explosions, and electrocutions.

Procedural, Program, and/or Equipment Requirements	Develop and implement an emergency action plan according to 29 CFR 1910.38 (**Note:** See Section I.B.1.). Provide two or more emergency escape routes from galleries or bin decks. Provide emergency escape route(s) for grain elevator tunnels. Provide a body harness and lifeline or boatswain's chair for entry into grain storage structures when the employee enters at or above the grain level. Ensure that a properly equipped observer maintains communication with an employee who enters a bin, silo, or tank. Provide rescue equipment designed for the storage structure.

Training Requirements	Train employees who serve as observers for entry into grain storage structures on rescue procedures, including notification for additional assistance. Explain the emergency action plan to contractors. Notify contractors of potential fire and explosion hazards related to their work and work area. Inform contractors performing work at the grain handling facility of known potential fire and explosion hazards related to the contractor's work and work area.
Assistance Tools	Standard – 29 CFR 1910.272 *Grain handling facilities.* Standard – 29 CFR 1910.272 Appendix A *Grain handling facilities.* OSHA Safety and Health Topics – *Grain Handling.* NIOSH ALERT – July 1986, DHHS (NIOSH) Publication No. 86-118, *Preventing Fatalities Due to Fires and Explosions in Oxygen-Limiting Silos*. National Agriculture Safety Database – Dawna L. Cyr and Steven B. Johnson, Ph.D. University of Maine *Grain Storage Safety*.

15. 29 CFR 1910 Subpart T *Diving Operations (29 CFR 1910.104 Scope and application, 1910.410 Qualifications of dive team, 1910.420 Safe practice manual, 1910.421 Pre-dive procedures, and 1910.422 Procedures during dive)*

These standards cover diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking, and longshoring. They include requirements for a safe practices manual, including emergency procedures. These standards also require the posting of emergency information, the availability of first aid kit(s), emergency communication equipment, and employee CPR and emergency training.

Procedural, Program, and/or Equipment Requirements	Develop and maintain a safe practices manual that includes emergency procedures for fire, equipment failure, adverse environmental conditions, and medical illness and injury for each diving mode. Make the manual available at the dive location to each dive team member. Ensure that the planning of a diving operation includes an assessment of emergency procedures. Prior to each diving operation, ensure that a list of telephone or call numbers for the following is kept at the dive location: • An operational decompression chamber (if not at the dive location), • Accessible hospitals, • Available physicians, • Available means of transportation, and • The nearest U.S. Coast Guard Rescue Coordination Center.

Procedural, Program, and/or Equipment Requirements (Continued)	Provide at the dive location a first aid kit appropriate for the diving operation and approved by a physician. When used in a decompression chamber or bell, ensure the first aid kit is suitable for use under hyperbaric conditions. Provide an American Red Cross standard first aid handbook or equivalent, and a bag-type manual resuscitator with transparent mask and tubing at the dive location. Provide an operational, two-way communication system at the dive location for obtaining emergency assistance.
Training Requirements	Ensure that dive team members have experience and/or provide training in diving operations and emergency procedures. Ensure that all dive team members are trained in CPR and first aid (American Red Cross standard course or equivalent).
Assistance Tools	Standard – 29 CFR 1910.401 *Scope and application.* Standard – 29 CFR 1910.410 *Qualifications of dive team.* Standard – 29 CFR 1910.420 *Safe practice manual.* Standard – 29 CFR 1910.421 *Pre-dive procedures.* Standard – 29 CFR 1910.422 *Procedures during dive.* Directive – STD 01-17-001 – 29 CFR 1910.401-1910.441, Subpart T, - Commercial Diving Operations. OSHA Website Safety and Health Topics – *Commercial Diving*.

16. 29 CFR 1910.1003 *13 Carcinogens (4-Nitrobiphenyl, etc.); 1910.1004 alpha-Naphthylamine, 1910.1006 Methyl chloromethyl ether, 1910.1007 3,3'-Dichlorobenzidine (and its salts), 1910.1008 bis-Chloromethyl ether, 1910.1009 beta-Naphthylamine, 1910.1010 Benzidine, 1910.1011 4-Aminodiphenyl, 1910.1012 Ethyleneimine, 1910.1013 beta-Propiolactone, 1910.1014 2-Acetylaminofluorene, 1910.1015 4-Dimethylaminoazobenzene,* and/or *1910.1016 N-Nitrosodimethylamine*

This standard covers any area in which the 13 carcinogens identified in the standard are manufactured, processed, repackaged, released, handled, or stored. The standard requires that an employer establish a regulated area where any of the 13 carcinogens are being handled and includes requirements addressing emergency releases in these areas. An emergency means an unforeseen circumstance or set of circumstances resulting in a carcinogen release that may result in employee exposure to or contact with the material.

Procedural, Program, and/or Equipment Requirements	Post appropriate signs at regulated area entrances and exits. Prescribe and post specific emergency procedures. Provide emergency showers and eyewash fountains near, within sight of, and on the same level where a direct exposure to Ethyleneimine or beta-Propiolactone would be most likely as a result of equipment failure or improper work practice. Evacuate areas where an emergency release has occurred. Correct the hazardous conditions and decontaminate the area before restarting normal operations. Ensure that employee(s) who were exposed shower as soon as possible. Provide special medical surveillance by a physician within 24 hours for employees located in an area where an emergency release has occurred. Report all releases that may expose employees to the OSHA Area Director within 24 hours. File a written report to the nearest OSHA Area Director within 15 calendar days.
Training Requirements	Before an employee is authorized to enter a regulated area provide, and review at least annually, training on the purpose and his or her role in emergency procedures, how to recognize situations that may result in a carcinogen release, and specific first aid care. Familiarize and rehearse with employees the specific emergency procedures that are prescribed and posted. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1003 *13 Carcinogens (1910.1004-1016).* National Institute for Occupational Safety and Health (NIOSH) – *Pocket Guide to Hazardous Chemicals.* OSHA Website Safety and Health Topics – *Carcinogens.*

17. 29 CFR 1910.1017 *Vinyl chloride*

This section applies to a variety of vinyl chloride or polyvinyl chloride operations and uses but does not apply to the handling or use of fabricated products made of polyvinyl chloride. Emergencies involving vinyl chloride occur when operations are likely to or actually result in a massive vinyl chloride release.

Procedural, Program, and/or Equipment Requirements	Post appropriate signs at entrances to regulated areas, areas containing hazardous operations, or where an emergency exists. For each facility using vinyl chloride as a liquid or compressed gas, develop a written operational plan for emergencies. Ensure that the plan addresses hazardous operations, hazardous release correction, and evacuation of the release area. Provide protective equipment for those working in hazardous areas and hazardous release areas. Provide appropriate medical surveillance to an employee exposed to an emergency. Report all emergencies to the OSHA Area Director within 24 hours.
Training Requirements	Include emergency procedures, how to recognize conditions that may result in a vinyl chloride release, and fire hazards and prevention in the employee training program. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1017 *Vinyl chloride*. Interpretation letter – March 10, 1986, Mr. Donald G. Mader, *Definitions of "massive release", "equipment failure", and "emergency" under the vinyl chloride standard.*

18. 29 CFR 1910.1027 *Cadmium*

This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms. The standard requires the development of a written plan for emergencies involving substantial releases of airborne cadmium and includes requirements for employee training on emergencies and medical examinations.

Procedural, Program, and/or Equipment Requirements	Develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. At a minimum, the plan must include • Provisions for the use of appropriate respirators and PPE, and • Restrictions for employees not essential to correcting the emergency situation from the area and normal operations halted in that area until the emergency is abated. Select and provide appropriate respirators for emergencies. Provide required medical examinations as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

Training Requirements	Provide training, including training on emergency procedures, prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter. Ensure employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1027 *Cadmium*. Standard Appendix – 1910.1027 Appendix A, Su*bstance safety data sheet – Cadmium*.

19. 29 CFR 1910.1028 *Benzene*

This standard covers benzene, in various forms, with exception to some fuels, certain storage facilities, materials with extremely small concentrations, and specific operations using benzene. Situations that are considered emergencies involving benzene include, but are not limited to, equipment failure, rupture of containers, or failure of control equipment, which may or does result in an unexpected significant benzene release.

Procedural, Program, and/or Equipment Requirements	Post signs at entrances to regulated areas. Select and provide appropriate respirators for emergencies. Whenever spills, leaks, ruptures, or other breakdowns occur that may lead to employee exposure, monitor (using area or personal sampling) after the cleanup of the spill or repair of the leak, rupture, or other breakdown to ensure that exposures have returned to the level that existed prior to the incident. Provide medical surveillance, required urine and blood analysis, and follow-up testing and consultation, as designated.
Training Requirements	Train employees on the applicable requirements in 29 CFR 1910.1200 (Hazard communication standard), the procedural and equipment requirements in 1910.1028, and respiratory protection.
Assistance Tools	Standard – 29 CFR 1910.1028 *Benzene.* Standard Appendix – 1910.1028 Appendix A, *Substance safety data sheet, Benzene*.

20. 29 CFR 1910.1029 *Coke oven emissions*

Coke oven emissions are produced by the destructive distillation or carbonization of coal. Exceptions to applying this standard may occur when other Federal agencies exercise statutory authority that affects occupational safety and health. An emergency includes, but is not limited to, equipment failure that is likely to, or does, result in any massive coke oven emission release.

Procedural, Program, and/or Equipment Requirements	Post applicable signs in regulated areas. Select and provide appropriate respirators for emergencies. Do not begin the next coking cycle following an emergency until the cause of the emergency is determined and corrected, unless the cycle is necessary to determine the cause of the emergency.
Training Requirements	Include a review of emergency procedures and respirator use in the training program.
Assistance Tools	Standard – 29 CFR 1910.1029 *Coke oven emissions.*

21. 29 CFR 1910.1044 *1,2-dibromo-3-chloropropane*

This section applies to occupational exposure to 1,2-dibromo-3-chloropropane (DBCP) except when used as a fertilizer or when sealed appropriately in a container. An emergency includes, but is not limited to, equipment failure, rupture of containers, or failure of control equipment which may, or does, result in an unexpected release of DBCP.

Procedural, Program, and/or Equipment Requirements	Post applicable signs that indicate all regulated areas. Develop, and implement as necessary, a written plan for emergencies for each workplace containing DBCP. Select and provide appropriate respirators, protective clothing and equipment for emergencies. Evacuate employees not engaged in responding to the emergency and do not resume normal operations until the emergency is abated. Install and maintain an alarm for alerting employees in case of a DBCP emergency. Provide medical surveillance and exposure monitoring when employees are exposed during a DBCP emergency.

Training Requirements	Inform employees about the emergency and first aid procedures in Appendix A. Ensure that employee training covers a review of 29 CFR 1910.1044, including emergency requirements. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1044 *1,2-dibromo-3-chloropropane*. Standard Appendix – 1910.1044 Appendix A, *Substance safety data sheet for DBCP*. Standard Appendix – 1910.1044 Appendix B, *Substance technical guidelines for DBCP*.

22. 29 CFR 1910.1045 *Acrylonitrile*

This section applies to occupational exposures to acrylonitrile (AN). Exceptions apply to some uses, handling, emissions, and temperatures. Any unexpected massive AN release is considered an emergency.

Procedural, Program, and/or Equipment Requirements	Identify the rooms in the workplace that contain AN by posting appropriate signs. Select and provide appropriate respirators for emergencies. Develop, and implement as necessary, a written plan for emergencies involving AN. Install and maintain an alarm for alerting employees in case of an AN emergency. Evacuate employees not engaged in correcting the emergency and do not allow their return until the emergency is abated. Report all AN emergencies to the OSHA Area Office within 72 hours.
Training Requirements	Include information about the emergency and first aid procedures in Appendix A. Provide emergency procedure training upon initial assignment and at least annually thereafter. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1045 *Acrylonitrile*. Standard Appendix – 1910.1045 Appendix A, *Substance safety data sheet for acrylonitrile*.

23. 29 CFR 1910.1047 *Ethylene oxide*

Ethylene oxide (EtO) possesses several physical and health hazards that merit special attention. This section applies to all occupational exposures to ethylene oxide (EtO) except some processes, uses, or handling of products containing EtO. A situation is an emergency when an unexpected significant release of EtO is likely to or does occur. This standard also applies to EtO used in emergency response efforts to clean up anthrax contaminated sites.

Procedural, Program, and/or Equipment Requirements	Post applicable signs that identify the rooms where EtO is used. Select and provide appropriate respirators for emergencies. Develop, and implement as necessary, a written plan for emergencies involving EtO. Include the elements required by 29 CFR 1910.38 and 1910.39. Install and maintain a general alarm to promptly alert employees of an EtO emergency and evacuate all employees from the area in an emergency situation. Provide medical exams and consultations to employees exposed during an EtO emergency.
Training Requirements	Initially, and at least annually, train employees in emergency EtO procedures. Inform applicable employees about the emergency and first aid procedures in Appendix A. Train employees on how to detect workplace EtO releases. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1047 *Ethylene oxide*. Standard Appendix – 29 CFR 1910.1047 Appendix A, *Substance safety data sheet for ethylene oxide (non-mandatory)*. Interpretation Letter – December 11, 1998, Mr. Darrel Giraud, *Use of ethylene oxide alarm systems with sensors.*

24. 29 CFR 1910.1048 *Formaldehyde*

This standard applies to all occupational exposures to formaldehyde. An emergency includes, but is not limited to, equipment failure, rupture of containers, or failure of control equipment that results in an uncontrolled release of formaldehyde in a significant amount.

Procedural, Program, and/or Equipment Requirements	Ensure that procedures are adopted and implemented to minimize injury and loss of life for each workplace, where an emergency involving formaldehyde is a possibility. Select and provide appropriate respirators for emergencies. Provide full body protection protective clothing for emergency reentry into areas of unknown concentration. Provide eyewash facilities in areas based on exposure probability. For all employees exposed to formaldehyde during an emergency, make medical examinations and surveillance available, and provide details about the exposure to the physician as soon as possible.
Training Requirements	Train employees in emergency procedures, including the specific duties for each employee during an emergency. Provide instruction for handling spills and cleanup procedures. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1048 *Formaldehyde*. Standard Appendix – 29 CFR 1910.1048 Appendix C, *Medical surveillance – Formaldehyde.* Interpretation Letter – December 12, 1989, Mr. Thomas J. Dufficy, *Requirements under the formaldehyde standard for quick drench showers, eye wash facilities, emergency plans and sampling.*

25. 29 CFR 1910.1050 *Methylenedianiline*

This section covers general industry occupational exposures to Methylenedianiline (MDA), except as provided by the standard. The standard requires a written plan for emergencies and addresses emergency alerting means, protective equipment, and medical surveillance. "Emergency" means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that results in an unexpected and potentially hazardous release of MDA.

Procedural, Program, and/or Equipment Requirements	Develop and implement a written plan for emergency situations where there is a possibility of an emergency. At a minimum, the plan must • Specifically provide that employees engaged in correcting emergency conditions shall be equipped with the appropriate PPE and clothing until the emergency is abated. • Specifically include provisions for alerting and evacuating affected employees. • Include elements prescribed in Emergency action plans (29 CFR 1910.38) and Fire prevention plans (29 CFR 1910.39).

Procedural, Program, and/or Equipment Requirements (Continued)	Where there is the possibility of employee exposure to MDA due to an emergency, provide means to promptly alert employees who have the potential to be directly exposed. Ensure that employees not engaged in correcting emergency conditions are immediately evacuated in the event of an emergency. Select and provide appropriate respirators for use during emergencies. Make available a medical surveillance program, as provided by the standard, for employees exposed to MDA during an emergency situation.
Training Requirements	Provide employees with information and training on MDA, in accordance with 29 CFR 1910.1200(h), at the time of initial assignment and at least annually thereafter. Ensure employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1050 *Methylenedianiline*. Standard Appendix – 1910.1050 Appendix A, *Substance data sheet, for 4,4'-Methylenedianiline*.

26. 29 CFR 1910.1051 *1,3-Butadiene*

This section applies to all occupational exposures to 1,3-Butadiene (BD), except as provided by the standard. The standard requires a written plan for emergencies and addresses protective equipment and medical surveillance. "Emergency situation" means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of BD.

Procedural, Program, and/or Equipment Requirements	Develop and implement a written plan for emergency situations where there is a possibility of an emergency. At a minimum, the plan must include applicable elements prescribed in • Emergency action plans (29 CFR 1910.38), • Fire prevention plans (29 CFR 1910.39), and • Hazardous waste operations and emergency response (29 CFR 1910.120). Make available a medical screening and surveillance program, as provided by the standard, for employees exposed to BD during an emergency situation. Ensure that medical screening is conducted following an emergency situation as quickly as possible, but not later than 48 hours after exposure. Select and provide appropriate respirators for use during emergencies.

Training Requirements	Provide training, including training on emergency procedures, prior to or at the time of initial assignment to a job potentially involving exposure to BD at or above the action level or short-term exposure limit and at least annually thereafter. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1051 *1,3 Butadiene*. Standard Appendix – 1910.1051 Appendix A – *Substance safety data sheet for 1,3-Butadiene*. Directive – CPL 02-02-066 – *1,3-Butadiene*.

27. 29 CFR 1910.1052 *Methylene Chloride*

This standard applies to all occupational exposures to methylene chloride (MC). It establishes requirements for employers to control occupational exposure to MC and addresses protective equipment, eyewash facilities, and medical surveillance for emergencies. "Emergency" means any occurrence, such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which results, or is likely to result in an uncontrolled release of MC.

Procedural, Program, and/or Equipment Requirements	Ensure that incidental leaks are repaired and that incidental spills are promptly cleaned up by employees who use the appropriate personal protective equipment and are trained in proper methods of cleanup. If employees respond to cleanup an emergency release of MC, implement an emergency response as described in 29 CFR 1910.120(q). Select and provide appropriate respirators for use during emergencies. Provide within the immediate work area and ensure that affected employees use appropriate emergency eyewash facilities if it is reasonably foreseeable that an employee's eyes may contact solutions containing 0.1 percent or greater MC (for example through splashes, spills, or improper work practices). Provide emergency medical surveillance, treatment, and decontamination, as provided by the standard, for employees exposed to MC during an emergency.
Training Requirements	Provide training and information for each affected employee prior to or at the time of initial assignment to a job involving potential exposure to MC. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.

Assistance Tools	Standard – 29 CFR 1910.1052 *Methylene Chloride*. Standard Appendix – 1910.1052 Appendix A, *Substance Safety Data Sheet and Technical Guidelines for Methylene Chloride*. Directive – CPL 02-02-070 – *Inspection Procedures for Occupational Exposure to Methylene Chloride Final Rule 29 CFR Part 1910.1052, 29 CFR Part 1915.1052 and 29 CFR 1926.1152.*

28. 29 CFR 1910.1450 *Occupational exposure to hazardous chemicals in laboratories*

This standard covers the laboratory use of hazardous chemicals and supercedes the health standards of 29 CFR 1910 Subpart Z, with a few exceptions for employee exposure limits, eye and skin contact, and action levels as it relates to medical surveillance. Emergencies in labs include occurrences that result in an uncontrolled release of a hazardous chemical into the workplace.

Procedural, Program, and/or Equipment Requirements	Include hazard determination and controls in the chemical hygiene plan. When a spill, leak, explosion, or other event occurs, determine the need for a medical examination by providing affected employees the opportunity for medical consultation.
Training Requirements	Provide training on how to detect the presence or release of a hazardous chemical. Train employees in specific emergency procedures. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1910.1450 *Occupational exposure to hazardous chemicals in laboratories*. Standard Appendix – 29 CFR 1910.1450 Appendix A, *National Research Council Recommendations Concerning Chemical Hygiene in Laboratories (Non-Mandatory).*

D. Requirements that Support Emergency Response and Preparedness

1. 29 CFR 1910.132 *General requirements (Personal Protective Equipment)*

This standard applies to PPE for eyes, face, head, and extremities, protective clothing; respiratory devices, and protective shields and barriers. Emergency situations often require PPE and must meet these general requirements when not addressed in a hazard- or industry-specific standard.

Procedural, Program, and/or Equipment Requirements	Assess the workplace for hazards that are present or likely to be present. Select and ensure the use of PPE based on the workplace assessment.
Training Requirements	Provide PPE training to all employees required to use PPE. Retrain employees when it is believed the employee does not have the understanding or skill to properly use the PPE. Verify that each affected employee has received and understood the required training through a written certification.
Assistance Tools	Standard – 29 CFR 1910.132 *General requirements (Personal Protective Equipment).* Standard Appendix – 29 CFR 1910 Subpart I Appendix B, *Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection.* Fact Sheet – OSHA Fact Sheet, *Personal Protective Equipment.* Other Agency Guidance – Center for Disease Control, *Personal Protective Equipment Program.* Other Agency Guidance – NIOSH, *Recommendations for Chemical Protective Clothing.*

2. 29 CFR 1910.134 *Respiratory protection*

The standard covers respirator use when atmospheric contamination cannot be reduced through effective engineering controls. An emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Procedural, Program, and/or Equipment Requirements	Select and provide respirators suitable for the intended purpose. When respirators are required, establish and implement a written respiratory protection program that includes procedures for proper respirator use in emergency situations. Update the program when changes in workplace conditions affect respirator use. Clean and disinfect emergency respirators after each use. Ensure that emergency respirators are properly stored and inspected. Certify emergency-only respirators by a certification tag or other proper documentation method. For entry into Immediately Dangerous to Life and Health (IDLH) environments, provide retrieval equipment or equivalent means for rescue of employees. Maintain required personnel and communications for emergency rescue. For interior structural firefighting, ensure that at least two employees who remain in contact with one another enter the structure.

Procedural, Program, and/or Equipment Requirements (Continued)	Provide sufficient standby personnel when employees enter IDLH environments. During interior structural firefighting, provide at least two standby personnel. Provide and ensure the use of self-contained breathing apparatuses during interior structural firefighting.
Training Requirements	Train, at least annually, all employees required to use a respirator on how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions. Provide training on the respiratory hazards employees may potentially be exposed to in emergency situations. Train and equip employees who provide emergency rescue in IDLH atmospheres.
Assistance Tools	Standard – 29 CFR 1910.134 *Respiratory protection.* Standard Appendix – 29 CFR 1910.134 Appendix B, *Respirator Cleaning Procedures (Mandatory*). Publication – *Questions and Answers on the Respiratory Protection Standard*. Publication – *Small Entity Compliance Guide for the Revised Respiratory Protection Standard.* E-Tools – *Respiratory Protection.* Interpretation Letter – April 29, 1998, J. Curtis Varone, Esq., *Two-in/two-out procedure in firefighting/IDLH environments.*

3. 29 CFR 1910.1000 *Air contaminants*

This standard establishes exposure limits for air contaminants. The standard includes ceiling concentrations and 8-hour time-weighted average limits for contaminants. It also provides a designation when exposure to the skin is a significant route of exposure. ***Note:*** The standard also includes limits for "Acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift" for some contaminants (Table Z-2). In addition, other OSHA standards include short-term exposure limits for some contaminants.

Procedural, Program, and/or Equipment Requirements	Ensure that employee exposures do not exceed the limits provided by the standard. Exposures must be limited through engineering controls, administrative controls, and, as a last resort, PPE.

Assistance Tools	Standard – 29 CFR 1910.1000 *Air contaminants*. Standard Appendix – 29 CFR 1910.1000 TABLE Z-1, *Limits for Air Contaminants.* Standard Appendix – 29 CFR 1910.1000 TABLE Z-2. Standard Appendix – 29 CFR 1910.1000 TABLE Z-3, *Mineral Dusts*.

4. 29 CFR 1910.1030 *Bloodborne pathogens*

This section applies to all occupational exposure to blood or other potentially infectious materials. Occupational exposure means reasonably anticipated contact with blood or other potentially infectious materials that may result from the performance of an employee's duties. Employees who are responsible for rendering first aid or medical assistance as part of their job duties are covered by the protections of the standard.

Procedural, Program, and/or Equipment Requirements	Establish and maintain a written Exposure Control Plan when there is occupational exposure to blood or other potentially infectious materials. This plan must be designed to eliminate or minimize employee exposure to bloodborne pathogens. Prepare an exposure determination for job classifications having occupational exposure. Provide appropriate PPE when employee exposure remains after the institution of engineering and work practice controls. Provide hepatitis B vaccine and vaccination series to all employees who have occupational exposure. Provide post-exposure evaluation and follow-up to all employees who have had an exposure incident in accordance with the Centers for Disease Control guidelines current at the time of the evaluation or procedure.
Training Requirements	Provide initial and annual bloodborne pathogens training to employees with occupational exposure. Provide information on the appropriate actions to take and persons to contact in the event of an emergency involving contact with blood or other potentially infectious materials.
Assistance Tools	Standard – 29 CFR 1910.1030 *Bloodborne Pathogens*. Directive – CPL 02-02-069 – *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens.* Interpretation – February 1, 1993, *Most frequently asked questions concerning the bloodborne pathogens standard*.

5. 29 CFR 1910.1200 *Hazard communication*

The hazard communication standard is intended to ensure that the hazards of all chemicals produced or imported are evaluated and that information concerning these hazards is transmitted

to employers and employees. This standard includes hazardous chemicals that employees may be exposed to in a foreseeable emergency.

Procedural, Program, and/or Equipment Requirements	Chemical manufacturers and importers must obtain or develop a material safety data sheet that includes emergency and first aid procedures for each hazardous chemical they produce or import. Develop and implement a hazard communication program. Ensure that material safety data sheets for each hazardous chemical used and the hazard communication program are available to workers in the workplace. For employees that travel between workplaces during a workshift, ensure that employees can immediately obtain the required information in an emergency.
Training Requirements	Provide training and information to employees on how to identify the release of hazardous chemicals in the work area, protect themselves from exposure, and implement emergency procedures.
Assistance Tools	Standard – 29 CFR 1910.1200 *Hazard communication*. Directive – CPL 02-02-038 – *Inspection Procedures for the Hazard Communication Standard.* Frequently Asked Questions – *Hazard Communication (HAZCOM).*

NOTE: In addition to the General Industry standards highlighted in this publication, the following standards also contain limited emergency-related requirements: 29 CFR 1910.68 Manlifts; 1910.1001 Asbestos; 1910.1018 Arsenic; and 1910.1096 Ionizing radiation.

II. Shipyard Employment (29 CFR 1915) Requirements for Emergency Response and Preparedness

A. General Requirements for Workplaces

1. 29 CFR 1915.52 *Fire prevention*

This standard covers fire prevention during welding, cutting, and heating operations for shipyard employment. It contains requirements to reduce fire potential, provide fire extinguishing equipment, and ensure that sufficient people are informed and available to assist in identifying and controlling fire hazards.

Procedural, Program, and/or Equipment Requirements	For ship building and repairing, provide sufficient additional personnel (fire watch personnel) for welding, cutting, and heating operations when necessary to guard against fire during and after those operations. Provide fire extinguishing equipment in ship breaking work areas that is suitable for the fire hazards and ready for use.
Training Requirements	Instruct fire watch personnel of potential fire hazards and on the use of fire fighting equipment. Instruct all ship breaking personnel expected to contain fires as to the fire hazards and the use of fire fighting equipment.
Assistance Tools	Standard – 29 CFR 1915.52 *Fire Prevention*. E-Tools – *Shipyard Employment – Ship Repair*.

2. 29 CFR 1915.98 *First aid*

This standard covers first aid requirements for shipyard employment. It contains requirements to ensure the availability of first aid equipment and employee(s) qualified to provide first aid.

Procedural, Program, and/or Equipment Requirements	Unless a first aid room or qualified attendant is close at hand to render care, provide an adequate first aid kit where work is being performed. Kits must be checked at least weekly to ensure they are sufficiently stocked. When 10 or more employees are working at a location, ensure a stretcher(s) is available and kept close to the vessels. This is not a requirement if available ambulance services are known to carry such stretchers.
Training Requirements	Ensure that at least one employee, close at hand, is qualified to render first aid.
Assistance Tools	Standard – 29 CFR 1915.98 *First aid*. E-Tools – *Shipyard Employment – Ship Repair*.

B. Additional Requirements for Workplaces Referenced in Other Requirements

There are no additional requirements for workplaces referenced in other requirements.

C. Additional Requirements for Specific Workplaces/Operations

1. 29 CFR 1915.12 *Diving Operations*

See Section I.C.15. (29 CFR 1910 Subpart T).

2. 29 CFR 1915.1003 *13 Carcinogens (4-Nitrobiphenyl, etc.);*

1915.1004 alpha-Naphthylamine,
1915.1006 Methyl chloromethyl ether,
1915.1007 3,3'-Dichlorobenzidine (and its salts),
1915.1008 bis-Chloromethyl ether,
1915.1009 beta-Naphthylamine,
19100.1010 Benzidine,
1910.1011 4-Aminodiphenyl,
1915.1012 Ethyleneimine,
1910.1013 beta-Propiolactone,
1910.1014 2-Acetylaminofluorene,
1915.1015 4-Dimethylaminoazobenzene, and/or
1915.1016 N-Nitrosodimethylamine.

See Section I.C.16. (29 CFR 1910.1003).

3. 29 CFR 1915.1017 *Vinyl chloride*

See Section I.C.17. (29 CFR 1910.1017).

4. 29 CFR 1915.1027 *Cadmium*

See Section I.C.18. (29 CFR 1910.1027).

5. 29 CFR 1915.1028 *Benzene*

See Section I.C.19. (29 CFR 1910.1028).

6. 29 CFR 1915.1044 *1,2-dibromo-3-chloropropane*

See Section I.C.21. (29 CFR 1910.1044).

7. 29 CFR 1915.1045 *Acrylonitrile*

See Section I.C.22. (29 CFR 1910.1045).

8. 29 CFR 1915.1047 *Ethylene oxide*

See Section I.C.23. (29 CFR 1910.1047).

9. 29 CFR 1915.1048 *Formaldehyde*

See Section I.C.24. (29 CFR 1910.1048).

10. 29 CFR 1915.1050 *Methylenedianiline*

See Section I.C.25. (29 CFR 1910.1050).

11. 29 CFR 1915.1052 *Methylene Chloride*

See Section I.C.27. (29 CFR 1910.1052).

12. 29 CFR 1915.1450 *Occupational exposure to hazardous chemicals in laboratories*

See Section I.C.28. (29 CFR 1910.1450).

C. Requirements that Support Emergency Response and Preparedness

1. 29 CFR 1915.152 *General requirements (Personal Protective Equipment)*

This standard covers the general requirements for evaluating the need for PPE, selecting the proper equipment, training employees on proper use, and ensuring that PPE is used by employees.

Procedural, Program, and/or Equipment Requirements	Assess work activities to determine if any hazards require the use of PPE, and document that hazard assessment. Select, provide, and ensure the use of appropriate PPE for each employee who is exposed to work hazards requiring PPE.
Training Requirements	Inform affected employees of the PPE selected based on the hazard assessment. Train each employee required to use PPE to understand when and what PPE is necessary; how to put on and remove PPE; how to wear and adjust PPE; the limitations and useful life of equipment; and the care, maintenance, and disposal of PPE. Employees must demonstrate the ability to use PPE prior to performing work requiring its use. Retrain employees who don't understand or display the skills necessary to properly use PPE. Changes in an employee's work task or duties, changes in the types of PPE used, and indications that an employee has not retained the knowledge to properly use PPE require retraining. Document all employee training with the date, employee's name, and type of training.
Assistance Tools	Standard – 29 CFR 1915.152 *General requirements (Personal Protective Equipment)*. E-Tools – *Shipyard Employment – Ship Repair*.

2. 29 CFR 1915.154 *Respiratory protection*

See Section I.D.2. (29 CFR 1910.134).

3. 29 CFR 1915.1000 *Air contaminants*

This standard establishes employee exposure limits for air contaminants. The standard includes ceiling limits and 8-hour time-weighted average limits for contaminants.

Procedural, Program, and/or Equipment Requirements	Ensure that employee exposures do not exceed the limits provided by the standard. Exposures should be limited through engineering controls, administrative controls, and, as a last resort, PPE.
Assistance Tools	Standard – 29 CFR 1915.1000 *Air contaminants*.

4. 29 CFR 1915.1030 *Bloodborne pathogens*

See Section I.D.4. (29 CFR 1910.1030).

5. 29 CFR 1915.1200 *Hazard communication*

See Section I.D.5. (29 CFR 1910.1200).

NOTE: In addition to the shipyard employment standards highlighted in this publication, the following standards also contain limited emergency-related requirements: 29 CFR 1915.12 Precautions and the order of testing before entering confined and enclosed spaces and other dangerous atmospheres; and 1915.92 Illumination.

III. Marine Terminals (29 CFR 1917) Requirements for Emergency Response and Preparedness

A. General Requirements for Workplaces

1. 29 CFR 1917.22 *Hazardous cargo*

This standard covers hazardous cargo in cargo handling operations. It addresses hazard identification and awareness, leak and spill procedures, and employee protection.

Procedural, Program, and/or Equipment Requirements	Prior to cargo handling, determine if hazardous cargo will be handled and the nature of the hazards. Remove employees from areas of a hazardous cargo spill or leak until the specific hazards have been identified. Once the hazards of spilled hazardous cargo have been identified, provide any equipment, clothing, and ventilation and fire protection equipment necessary to eliminate or protect against the hazard. Actual cleanup or disposal work shall be conducted under the supervision of a designated person.
Training Requirements	Inform employees of potential cargo hazards and precautions to protect themselves. Instruct employees to give notification in the case of spills or leaks and ensure that employees are informed of safe spill cleanup and container disposal methods.
Assistance Tools	Standard – 29 CFR 1917.22 *Hazardous cargo*.

2. 29 CFR 1917.23 *Hazardous atmospheres and substances*

This standard covers areas where the employer knows, or has reason to believe, that a hazardous atmosphere or substance may exist. Requirements cover hazard determination, testing during ventilation, and entry into areas containing hazardous atmospheres.

Procedural, Program, and/or Equipment Requirements	Protect persons entering a space containing a hazardous atmosphere by testing the atmosphere and providing appropriate respiratory and emergency protective equipment. Except for emergency or rescue operations, do not permit employees to enter into any atmosphere which has been identified as flammable or oxygen deficient (less than 19.5 percent oxygen). Standby observers must continuously monitor the activities of employees who enter an area containing a hazardous atmosphere. Post signs at entry to spaces with hazardous, flammable, or oxygen-deficient atmospheres to prevent inadvertent entry.
Training Requirements	Provide instruction to persons entering a space containing a hazardous atmosphere regarding the hazards, precautions to be taken, and the use of protective and emergency equipment. Standby observers must also be instructed similarly.

Training Requirements (Continued)	In emergency or rescue operations where entry into flammable or oxygen-deficient atmospheres is necessary, train employees as to the hazards and the use of self-contained breathing apparatus (SCBAs).
Assistance Tools	Standard – 29 CFR 1917.23 *Hazardous atmospheres and substances*. Standard – 29 CFR 1917.152 *Welding, cutting and heating (hot work)*.

3. 29 CFR 1917.26 *First aid and lifesaving facilities*

This standard includes the requirements for first aid, stretchers, life rings, and communication for marine terminals.

Procedural, Program, and/or Equipment Requirements	Make available at the terminal a first aid kit appropriate for the hazards found in marine cargo handling operations. The kit's contents must be checked often enough to ensure prompt replacement of needed or expired items. Provide stretchers in operable condition for each vessel being worked. Provide a life ring at each waterside work area where there is potential for drowning. Provide a telephone or other effective means of communication.
Training Requirements	When work is in progress, at least one person must have a current first aid certificate to provide first aid care.
Assistance Tools	Standard – 29 CFR 1917.26 *First aid and lifesaving facilities*.

4. 29 CFR 1917.30 *Emergency action plans*

An emergency action plan establishes procedures that prevent fatalities, injuries, and property damage. The plan must cover the actions the employer and employees are to take to ensure employee safety in the case of fire or other emergencies.

Procedural, Program, and/or Equipment Requirements	Prepare an emergency action plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees. At a minimum, the plan must include • Escape procedures and escape routes, • Procedures for those who remain to conduct critical operations prior to evacuation, • Procedures to account for employees after evacuation, • The rescue and medical duties of employees, • The fire and emergency reporting procedures, and • Who to contact for further information or explanation about the plan. Establish an emergency alarm system for emergency action and/or evacuation. If employees are directed to respond to an emergency that is beyond the scope of the emergency action plan required by 29 CFR 1917.30, then ensure compliance with the requirements of 29 CFR 1910.120(q).

Training Requirements	Review the emergency action plan with each employee when the plan is developed, when they are initially assigned to work, his or her responsibilities change or the plan changes. Train employee(s) who are expected to assist in the safe and orderly evacuation.
Assistance Tools	Standard – 29 CFR 1917.30 *Emergency action plans*.

5. 29 CFR 1917.128 *Signs and marking*

This standard for terminal facilities includes requirements for posting of signs for first aid facilities, firefighting and emergency equipment, exits, and emergency contact information.

Procedural, Program, and/or Equipment Requirements	Conspicuously post signs for locations of first aid facilities, telephones, firefighting and emergency equipment, and fire exits. Conspicuously post telephone numbers of the closest ambulance service, hospital or other source of medical attention, police, fire department, and emergency squad (if any).
Assistance Tools	Standard – 29 CFR 1917.128 *Signs and marking*.

B. Additional Requirements for Workplaces Referenced in Other Requirements

There are no additional requirements for workplaces referenced in other requirements.

C. Additional Requirements for Specific Workplaces/Operations

1. 29 CFR 1917.1 *Scope and applicability (***29 CFR 1910 Subpart T** *Commercial Diving applies to marine terminals)*

See Section I.C.15. (29 CFR 1910 Subpart T).

2. 29 CFR 1917.73 *Termination facilities handling menhaden and similar species of fish*

This standard addresses termination facilities handling menhaden and similar species of fish. It includes requirements for personal protective and rescue equipment for hazardous atmospheres, stand-by rescue personnel for entry into hazardous atmospheres, and employee training.

Training Requirements	Appropriately train the plant superintendent and foremen about the hazards of hydrogen sulfide and oxygen deficiency, the use of appropriate respiratory and other protective equipment, and the rescue procedures. Inform other supervisory plant personnel of hydrogen sulfide and oxygen deficiency hazards and instruct them in the necessary safety measures, including use of respiratory and rescue equipment.
Assistance Tools	Standard – 29 CFR 1917.73 *Termination facilities handling menhaden and similar species of fish*.

D. Requirements that Support Emergency Response and Preparedness

1. 29 CFR 1917.25 *Fumigants, pesticides, insecticides, and hazardous preservatives*

This standard covers fumigants, pesticides, insecticides, and hazardous preservatives at marine terminal operations. The standard includes requirements for providing emergency protective equipment and training employees who enter spaces containing hazardous atmospheres.

Procedural, Program, and/or Equipment Requirements	Allow only designated persons to enter hazardous atmospheres. Provide and ensure the use of appropriate respiratory and emergency protective equipment for persons entering a space containing a hazardous atmosphere. Similarly equip standby observers.
Training Requirements	Provide instruction to persons entering a space containing a hazardous atmosphere on the nature of the hazard(s), precautions to be taken, and the use of protective and emergency equipment. Ensure standby observers continuously monitor the activity of employees within spaces containing a hazardous atmosphere.
Assistance Tools	Standard – 29 CFR 1917.25 *Fumigants, pesticides, insecticides and hazardous preservatives*.

2. 29 CFR 1917.28 *Hazard communication*

See Section I.D.5. (29 CFR 1910.1200).

3. 29 CFR 1917.92 *Respiratory protection*

See Section I.D.2. (29 CFR 1910.134).

4. 29 CFR 1917.95 *Other protective measures*

This marine terminal standard includes requirements for protective clothing, personal flotation devices, and emergency facilities.

Procedural, Program, and/or Equipment Requirements	When employees are exposed to hazardous substances that may require emergency bathing, eye-washing, or other facilities, provide and maintain such facilities.
Assistance Tools	Standard – 29 CFR 1917.95 *Other protective measures*.

NOTE: In addition to the marine terminal standards highlighted in this publication, the following standards also contain limited emergency-related requirements: 29 CFR 1917.45 Cranes and derricks; 1917.49 Spouts, chutes, hoppers, bins, and associated equipment; 1917.117 Manlifts; and 1917.157 Battery charging and changing.

IV. Longshoring (29 CFR 1918) Requirements for Emergency Response and Preparedness

A. General Requirements for Workplaces

1. 29 CFR 1918.93 *Hazardous atmospheres and substances*

This standard covers areas where the employer knows, or has reason to believe, that a hazardous atmosphere or substance may exist. Requirements cover hazard determination, testing during ventilation, and entry into areas containing hazardous atmospheres.

Procedural, Program, and/or Equipment Requirements	Protect persons entering a space containing a hazardous atmosphere by providing appropriate respiratory and emergency protective equipment. Standby observers must continuously monitor the activities of employees who enter an area containing a hazardous atmosphere.
Training Requirements	Provide instruction to persons entering a space containing a hazardous atmosphere regarding the hazards, precautions to be taken, and the use of protective and emergency equipment. Standby observers must also be instructed similarly. In emergency or rescue operations where entry into flammable or oxygen-deficient atmospheres is necessary, train employees as to the hazards and the use of SCBAs.
Assistance Tools	Standard – 29 CFR 1918.93 *Hazardous atmospheres and substances*.

2. 29 CFR 1918.94 *Ventilation and atmospheric conditions*

This standard covers ventilation and atmospheric conditions for the longshoring industry. It includes requirements concerning carbon monoxide, fumigated cargo, grain dust, and fish catches.

Procedural, Program, and/or Equipment Requirements	When employees are entering a compartment containing a hazardous or unknown concentration of fumigants for testing of the atmosphere, or for emergency purposes, protect each employee with appropriate respiratory protective equipment meeting the provisions of 29 CFR 1910.134 (per 29 CFR 1918.102). Provide any protective clothing and other PPE recommended by the fumigant manufacturer for protection against hazards. Ensure that at least two similarly equipped employees are stationed outside the compartment as observers, to provide rescue services in case of emergency. Provide one or more employees on duty to provide any specific emergency medical treatment stipulated for the particular fumigant. Ensure that emergency equipment is readily accessible wherever fumigated grains are being handled.

Training Requirements	Train employees who are to provide emergency care on any specific emergency medical treatment stipulated for the particular fumigant(s).
Assistance Tools	Standard – 29 CFR 1918.94 *Ventilation and atmospheric conditions*.

3. 29 CFR 1918.97 *First aid and lifesaving facilities*

This standard includes the requirements for first aid, stretchers, life-rings, and communication for the longshoring industry.

Procedural, Program, and/or Equipment Requirements	Make available at or near each vessel being worked a first aid kit appropriate for the hazards found in marine cargo handling facilities. The kit's contents must be checked often enough to ensure prompt replacement of needed or expired items. Provide stretchers in operable condition for each vessel being worked. Provide a life-ring and line in the vicinity for each vessel being worked and for each floating vessel. Provide a telephone or other effective means of communication.
Training Requirements	When work is in progress, ensure that at least one person has a current first aid certificate to render first aid.
Assistance Tools	Standard – 29 CFR 1918.97 *First aid and lifesaving facilities.* Standard Appendix – 29 CFR 1918 Appendix V, *Basic Elements of a First Aid Training Program (Non-mandatory).*

4. 29 CFR 1918.100 *Emergency action plans*

An emergency action plan establishes procedures that prevent fatalities, injuries, and property damage. The plan must cover the actions the employer and employees are to take to ensure employee safety in the case of fire or other emergencies.

Procedural, Program, and/or Equipment Requirements	Prepare an emergency action plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees. At a minimum, the plan must include • Escape procedures and escape routes, • Procedures for those who remain to conduct critical operations prior to evacuation, • Procedures to account for employees after evacuation, • The rescue and medical duties of employees, • The fire and emergency reporting procedures, and • Who to contact for further information or explanation about the plan.

Procedural, Program, and/or Equipment Requirements (Continued)	Establish an emergency alarm system for emergency action and/or evacuation.
Training Requirements	Review the emergency action plan with each employee when the plan is developed, when they are initially assigned to work, his or her responsibilities change or the plan changes. Train employee(s) who are expected to assist in the safe and orderly evacuation.
Assistance Tools	Standard – 29 CFR 1918.100 *Emergency action plans*.

B. Additional Requirements for Workplaces Referenced in Other Requirements

There are no additional requirements for workplaces referenced in other requirements.

C. Additional Requirements for Specific Workplaces/Operations

1. 29 CFR 1918.1 *Scope and application (29 CFR 1910 Subpart T Commercial Diving applies to marine terminals)*

See Section I.C.15. (29 CFR 1910 Subpart T).

D. Requirements that Support Emergency Response and Preparedness

1. 29 CFR 1918.90 *Hazard communication*

See Section I.D.5. (29 CFR 1910.1200).

2. 29 CFR 1918.102 *Respiratory protection*

See Section I.D.2. (29 CFR 1910.134).

NOTE: In addition to the longshoring standards highlighted in this publication, the following standards also contain limited emergency-related requirements: 29 CFR 1918.85 Containerized cargo operations; and 1918.88 Log operations.

V. Construction (29 CFR 1926) Requirements for Emergency Response and Preparedness

A. General Requirements for Workplaces

1. 29 CFR 1926.23 *First aid and medical attention, and* 1926.50 *Medical services and first aid*

These first aid and medical service requirements apply to construction work only. The standard establishes requirements for first aid and medical care for job-related injuries.

Procedural, Program, and/or Equipment Requirements	Make arrangements before a project begins to ensure that medical personnel are available for advice and consultation on occupational health matters. First aid supplies shall be easily accessible when required. Ensure that kits are checked before being sent out to a job and at least weekly to replace used items. Provide suitable facilities for immediate emergency use for quick drenching and flushing of the eyes and body, if exposure to corrosive materials is possible. Provide proper equipment to transport the injured person to a physician or hospital or a communication system for contacting necessary ambulance service. Post the telephone numbers of physicians, hospitals, or ambulances, where 911 service is not available.
Training Requirements	In the absence of readily accessible medical services, a person who has a valid certificate in first aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence must be available at the worksite to render first aid.
Assistance Tools	Standard – 29 CFR 1926.23 *First aid and medical attention*. Standard – 29 CFR 1926.50 *Medical services and first aid*. Interpretation Letter – December 1, 1976, Ms. Deborah A. Moser, *Accessibility of a hospital or physician in terms of distance and travel time*.

2. 29 CFR 1926.24 *Fire protection and prevention*, *1926.150 Fire protection, and* *1926.151 Fire prevention*

These standards apply to construction, repair, alteration, and demolition work. The standards require the development of a fire prevention and protection program and the availability of fire suppression equipment.

Procedural, Program, and/or Equipment Requirements	Develop a fire protection program to provide equipment for potential fire hazards. Conspicuously locate firefighting equipment. Provide fire extinguishers and other firefighting equipment based on site conditions and site fire hazards (fire classes). Periodically inspect and maintain firefighting equipment. Replace defective equipment. Where warranted by the project, provide a trained and equipped firefighting organization (fire brigade). Establish an alarm system to alert employees on the site and the local fire department of an emergency. Post alarm code(s) and reporting instructions at phones and at employee entrances. Ensure that material storage and potential ignition sources do not create a fire hazard. Store materials so that exits are not impeded.
Training Requirements	If a fire brigade is necessary, adequately train the fire brigade.
Assistance Tools	Standard – 29 CFR 1926.24 *Fire protection and prevention*. Standard – 29 CFR 1926.150 *Fire protection.* Standard – 29 CFR 1926.151 *Fire prevention.*

3. 29 CFR 1926.34 *Means of egress*

This standard provides requirements to ensure that egress is unobstructed and clearly marked.

Procedural, Program, and/or Equipment Requirements	Maintain unobstructed egress from every building and structure where employees are working. Mark all exits with signs and mark access to exits where it is not immediately apparent how to exit.
Assistance Tools	Standard – 29 CFR 1926.34 *Means of egress*.

B. Additional Requirements for Workplaces Referenced in Other Requirements

1. 29 CFR 1926.35 *Employee emergency action plans*

In preparing for fire and other emergencies, an emergency action plan establishes procedures to ensure employee safety and health. An emergency action plan is a workplace requirement when another applicable standard requires it. The following standards reference or require compliance with 1926.35: 29 CFR 1926.64 and 1926.65.

Procedural, Program, and/or Equipment Requirements	Prepare and implement a written emergency action plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees. Develop a plan that includes • Emergency escape procedures and route assignment, • Procedures for those who remain to conduct critical operations, • Procedures to account for employees after the emergency, • Rescue and medical duties of those assigned to them, • Means of reporting fires and emergencies, and • Names or titles of those to contact for further information about the plan. Establish an employee alarm system.
Training Requirements	Review the emergency action plan with each employee when the plan is developed, responsibilities shift, or the emergency procedures change. Provide specific training to employees who are expected to assist in the evacuation.
Assistance Tools	Standard – 29 CFR 1926.35 *Employee emergency action plans*.

C. Additional Requirements for Specific Workplaces/Operations

1. CFR 29 1926.60 *Methylenedianiline*

This section covers occupational exposures to Methylenedianiline (MDA) in construction work, except as provided by the standard. The standard requires a written plan for emergencies and addresses emergency alerting means and escape, protective equipment, and medical surveillance. "Emergency" means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that results in an unexpected and potentially hazardous release of MDA.

Procedural, Program, and/or Equipment Requirements	Develop and implement a written plan for emergency situations where there is a possibility of an emergency. At a minimum, the plan must • Identify emergency escape routes for employees at each construction site before the construction operation begins. • Specifically provide that employees engaged in correcting emergency conditions shall be equipped with the appropriate PPE and clothing until the emergency is abated. • Include elements prescribed in Emergency action plans (29 CFR 1910.38) and Fire prevention plans (29 CFR 1910.39). Where there is the possibility of employee exposure to MDA due to an emergency, provide means to promptly alert employees who have the potential to be directly exposed. Ensure that employees not engaged in correcting emergency conditions are immediately evacuated in the event of an emergency. Select and provide appropriate respirators for use during emergencies. Make available a medical surveillance program, as provided by the standard, for employees exposed to MDA during an emergency situation.
Training Requirements	Provide employees with information and training on MDA, in accordance with 29 CFR 1910.1200 (h), at the time of initial assignment and at least annually thereafter. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1926.60 *Methylenedianiline*. Standard Appendix – 1926.60 Appendix A, *Substance data sheet,* for 4,4'-Methylenedianiline.

2. CFR 29 1926.64 *Process safety management (PSM) of highly hazardous chemicals*

See Section I.C.3. (29 CFR 1910.119)

3. 29 CFR 1926.65 *Hazardous waste operations and emergency response, paragraphs (b) Safety and health program through (o) New technology programs*

See Section I.C.4. (29 CFR 1910.120, paragraphs (b)-(o)).

4. 29 CFR 1926.65, paragraph (p) *Certain operations conducted under the Resource Conservation and Recovery Act of 1976 (RCRA)*

See Section I.C.5. (29 CFR 1910.120, paragraph (p))

5. 29 CFR 1926.65, paragraph (q) *Emergency response to hazardous substance releases*

See Section I.C.6. (29 CFR 1910.120, paragraph (q))

6. 29 CFR 1926.651 *Specific excavation requirements*

This standard provides safety and rescue requirements for work in open excavations, including trenches.

Procedural, Program, and/or Equipment Requirements	Provide emergency rescue equipment, such as a respirator, a safety harness and lifeline, or a basket stretcher when an excavation contains or potentially contains a hazardous atmosphere. Ensure that person(s) attend the equipment in case of emergency. Provide and ensure the use of a safety harness and lifeline when employee(s) perform work in bell-bottom pier holes, or other similar deep and confined footing excavations. Ensure that person(s) attend the lifeline while worker(s) are in the excavation.
Assistance Tools	Standard – 29 CFR 1926.651 *Specific excavation requirements.*

7. 29 CFR 1926.800 *Underground construction*

This section applies to the construction of underground tunnels, shafts, chambers, and passageways. This section also applies to cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction. It includes emergency provisions for evacuation and employee check-in/check-out.

Procedural, Program, and/or Equipment Requirements	Where there is a potential environmental or structural failure hazard, develop and maintain a check-in/check-out procedure to provide an accurate count of the number of persons underground in the event of an emergency. For work in underground hazardous locations, provide means to summon emergency assistance to an employee working alone who is not being observed or can't request assistance by voice. Ensure hoist shafts used as means of egress during emergency include power-assisted

Procedural, Program, and/or Equipment Requirements (Continued)	hoisting capability, unless the regular hoisting means can operate during electrical power failure. Ensure that air monitoring is performed meeting the requirements of 29 CFR 1926.800(j). When continuous sampling indicates that hydrogen sulfide concentrations reach 20 parts per million, a visual and aural alarm shall signal additional measures, such as respirator use, increased ventilation, or employee evacuation. Whenever 20 percent or more of the lower explosive limit for methane or other flammable gases is detected, employees, except those necessary to eliminate the hazard, shall be immediately evacuated to a safe location above ground. Select, provide, and make immediately available NIOSH approved self-rescuers to all employees in underground areas where employees might be trapped by smoke or gas. Designate at least one person to be on duty above ground to summon emergency aid for, and keep count of, underground employees. Provide an acceptable portable hand lamp or cap lamp to each underground employee for emergency use, unless natural light or an emergency lighting system is sufficient for escape. Establish at least two 5-person rescue teams for jobsites where 25 or more employees work underground at one time. Establish at least one rescue team where there are less than 25 employees working underground. Ensure that underground construction operations meet the fire prevention and control requirements provided by 29 CFR 1926.800(m).
Training Requirements	Instruct all employees on fire prevention and protection and emergency procedures, including evacuation plans and check-in/check-out systems. Qualify, at least annually, rescue team members in rescue procedures, the use and limitations of respirators, and the use of firefighting equipment. On sites where hazardous levels of flammable or noxious gases are found or anticipated, ensure that rescue team members practice monthly the donning and use of SCBAs. Ensure that rescue teams are familiar with jobsite conditions.
Assistance Tools	Standard – 29 CFR 1926.800 *Underground construction.* Interpretation Letter – May 3, 2001, Mr. Craig Jorsch, *Application of 1926.800 to lone employees working underground in a tunnel or shaft connected to a tunnel.*

8. 29 CFR 1926.950 *General requirements (Power Transmission and Distribution)*

This standard covers erection of new electric transmission and distribution lines and equipment, and the alteration, conversion, and improvement of existing electric transmission and distribution lines and equipment. The standard includes specific emergency procedures and first aid requirements.

Procedural, Program, and/or Equipment Requirements	Provide spotlights or portable lights for emergency lighting when needed to work safely at night.
Training Requirements	Provide training and ensure that employees understand emergency procedures and first aid fundamentals including CPR. (Alternatively, meet the requirements of 29 CFR 1926.50(c), Note: See Section V.A.1.)
Assistance Tools	Standard – 29 CFR 1926.950 *General requirements (Power Transmission and Distribution).*

The following construction standards are identical to those set forth in the corresponding general industry standards (29 CFR Part 1910).

9. **29 CFR 1926 Subpart T** *Diving Operations*
(29 CFR 1926.1071 Scope and application,
1926.1076 *Qualifications of dive team,*
1926.1080 *Safe practice manual,*
1926.1081 *Pre-dive procedures, and*
1926.1082 *Procedures during dive)*

See Section I.C.15. (29 CFR 1910 Subpart T)

10. **29 CFR 1926.1103** *13 Carcinogens, etc. (4-Nitrobiphenyl, etc.);*
1926.1104 *alpha-Naphthylamine,*
1926.1106 *Methyl chloromethyl ether,*
1926.1107 *3, 3'-Dichlorobenzidine (and its salts),*
1926.1108 *bis-Chloromethyl ether,*
1926.1109 *beta-Naphthylamine,*
1926.1110 *Benzidine,*
1926.1111 *4-Aminodiphenyl,*
1926.1112 *Ethyleneimine,*
1926.1113 *beta-Propiolactone,*
1926.1114 2-Acetylaminofluorene,
1926.1115 *4-Dimethylaminoazobenzene,* and/or
1926.1116 *N-Nitrosodimethylamine*

See Section I.C.15. (29 CFR 1910.1003)

11. **29 CFR 1926.1117** *Vinyl chloride*

See Section I.C.17. (29 CFR 1910.1017)

12. 29 CFR 1926.1127 *Cadmium*

This standard applies to all construction industry occupational exposures to cadmium and cadmium compounds, in all forms. The standard requires the development of a written plan for emergencies involving substantial releases of airborne cadmium and includes requirements for employee training on emergencies and medical examinations.

Procedural, Program, and/or Equipment Requirements	Develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. At a minimum, the plan must include • Provisions for the use of appropriate respirators and personal protective equipment; and • Restrictions for employees not essential to correcting the emergency situation from the area and normal operations halted in that area until the emergency is abated. Select and provide appropriate respirators for emergencies. Provide required medical examinations as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.
Training Requirements	Provide training, including training on emergency procedures, prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter. Ensure that employees who must wear respiratory protection, including those who do not evacuate but stay to handle emergencies, receive training consistent with 29 CFR 1910.134.
Assistance Tools	Standard – 29 CFR 1926.1127 *Cadmium*. Standard Appendix – 1926.1127 Appendix A, *Substance Safety Data Sheet – Cadmium*.

13. 29 CFR 1926.1128 *Benzene*

See Section I.C.19. (29 CFR 1910.1028)

14. 29 CFR 1926.1129 *Coke oven emissions*

Note: See Section I.C.20. (29 CFR 1910.1029)

15. 29 CFR 1926.1144 *1,2-dibromo-3-chloropropane*

See Section I.C.21. (29 CFR 1910.1044)

16. 29 CFR 1926.1145 *Acrylonitrile*

See Section I.C.22. (29 CFR 1910.1045)

17. 29 CFR 1926.1147 *Ethylene oxide*

See Section I.C.23. (29 CFR 1910.1047)

18. 29 CFR 1926.1148 *Formaldehyde*

See Section I.C.24. (29 CFR 1910.1048)

19. 29 CFR 1926.1152 *Methylene Chloride*

See Section I.C.27. (29 CFR 1910.1052)

D. Requirements that Support Emergency Response and Preparedness

1. 29 CFR 1926.28 *Personal protective equipment* and *1926.95 Criteria for personal protective equipment*

These general PPE standards address the availability and use of protective equipment for employees. The standard requires that appropriate equipment be chosen based on site conditions and hazards and that the employer ensure the equipment's use.

Procedural, Program, and/or Equipment Requirements	Provide and ensure the use and maintenance of appropriate PPE for site operations and hazards. Ensure any employee-owned equipment is adequate and properly maintained.
Assistance Tools	Standard – 29 CFR 1926.28 *Personal protective equipment.* Standard – 29 CFR 1926.95 *Criteria for personal protective equipment.*

2. 29 CFR 1926.55 *Gases, vapors, fumes, dusts, and mists*

This standard establishes employee exposure limits for air contaminants. The standard includes ceiling limits and 8-hour time-weighted average limits for contaminants.

Procedural, Program, and/or Equipment Requirements	Ensure that employee exposures do not exceed the limits provided by the standard. Exposures should be limited through engineering controls, administrative controls, and, as a last resort, PPE.
Assistance Tools	Standard – 29 CFR 1926.55 *Gases, vapors, fumes, dusts, and mists*. *S*tandard Appendix – 1926.55 Appendix A, *Gases, vapors, fumes, dusts, and mists.*

3. 29 CFR 1926.59 *Hazard communication*

See Section I.D.5. (29 CFR 1910.1200)

4. 29 CFR 1926.103 *Respiratory protection*

See Section I.D.2. (29 CFR 1910.134)

NOTE: In addition to the construction standards highlighted in this publication, the following standards also contain limited emergency related requirements: 29 CFR1926.803 Compressed air; 1926.955 Overhead lines; and 1926.956 Underground lines.

VI. Agriculture (29 CFR 1928) Requirements for Emergency Response and Preparedness

A. General Requirements for Workplaces

1. 29 CFR 1928.21 *Applicability of Standards in 29 CFR Part 1910*

This standard provides that certain standards contained in 29 CFR 1910 (General Industry) are applicable to agricultural operations. Several of the standards, listed below, contain emergency-related requirements.

- Logging operations, 29 CFR 1910.266 (See Section I.C.11.)
- Storage and handling of anhydrous ammonia, 29 CFR 1910.111(a) and (b) (See Section I.C.2.)
- Hazard communication, 29 CFR 1910.1200 (See Section I.D.5.)
- Cadmium, 29 CFR 1910.1027 (See Section I.C.18.)

Additional Online Emergency Assistance Information

OSHA

OSHA's Emergency Preparedness and Response Page

This webpage provides links to Emergency Preparedness and Response materials to assist employers and employees in planning for all types of emergencies in the workplace. Guidance published includes the *Evacuation Planning Matrix*, *Evacuation eTool*, and the *Fire and Explosion Matrix*. The webpage also includes a link to OSHA's electronic Health and Safety Plan (e-HASP). The electronic, interactive e-HASP Guide is intended to be used by health and safety professionals to provide "model" language in preparing a site's HASP.

How to Plan for Workplace Emergencies and Evacuations – OSHA Publication 3088

The booklet is written to help employers plan for emergencies and develop an emergency action plan.

Other Sources of Information

Department of Homeland Security Website

Federal Emergency Management Agency Website

National Response Team Website

State Emergency Response Agency Websites

DOT's 2002 Emergency Response Guidebook (ERG2002)

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace, and to your life.

Safety and Health Program Management Guidelines

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection and can save time and money and increase productivity and reduce employee injuries, illnesses, and related workers' compensation costs.

To assist employers and employees in developing effective safety and health programs, OSHA published recommended Safety and Health Program Management Guidelines (54 Federal Register (16): 3904-3916, January 26, 1989). These voluntary guidelines can be applied to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management system:
- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The Federal Register notice is available online at www.osha.gov.

State Programs

The *Occupational Safety and Health Act of 1970* (OSH Act) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico, and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; Connecticut, New Jersey, New York, and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices, and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards, and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for a period of 1 year. For more information concerning consultation assistance, see OSHA's website at www.osha.gov.

Voluntary Protection Programs (VPP)

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the OSH Act. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees, and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed at the end of this publication.

Strategic Partnership Program

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist, and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives, and others (e.g., trade unions, trade and professional associations, universities, and other government agencies).

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

Alliance Program

Through the Alliance Program, OSHA works with groups committed to safety and health, including businesses, trade or professional organizations, unions and educational institutions, to leverage resources and expertise to develop compliance assistance tools and resources and share information with employers and employees to help prevent injuries, illnesses and fatalities in the workplace.

Alliance program agreements have been established with a wide variety of industries including meat, apparel, poultry, steel, plastics, maritime, printing, chemical, construction, paper and telecommunications. These agreements are addressing many safety and health hazards and at-risk audiences, including silica, fall protection, amputations, immigrant workers, youth and small businesses. By meeting the goals of the Alliance Program agreements (training and education, outreach and communication, and promoting the national dialogue on workplace safety and health), OSHA and the Alliance Program participants are developing and disseminating compliance assistance information and resources for employers and employees such as electronic assistance tools, fact sheets, toolbox talks, and training programs.

OSHA Training and Education

OSHA area offices offer a variety of information services, such as compliance assistance, technical advice, publications, audiovisual aids, and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, employees, and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers include colleges, universities, and nonprofit training organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on training and education, contact the OSHA Training Institute, Directorate of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL, 60005, (847) 297-4810, or see Training on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA regional office listed at the end of this publication.

Information Available Electronically

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include electronic compliance assistance tools, such as *Safety and Health Topics Pages, eTools, Expert Advisors;* regulations, directives, publications and videos; and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives, and more can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, toll-free phone (866) 512-1800.

OSHA Publications

OSHA has an extensive publications program. For a listing of free or sales items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210: Telephone (202) 693-1888 or fax to (202) 693-2498.

Contacting OSHA

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA Regional office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.
By visiting OSHA's website at www.osha.gov, you can also:

- File a complaint online,
- Submit general inquiries about workplace safety and health electronically, and
- Find more information about OSHA and occupational safety and health.

OSHA Regional Offices

Region I
(CT,* ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565–9860

Region II
(NJ,* NY,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337–2378

Region III
(DE, DC, MD,* PA, VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861–4900

Region IV
(AL, FL, GA, KY,* MS, NC,* SC,* TN*)
SNAF
61 Forsyth Street SW, Room 6T50
Atlanta, GA 30303
(404) 562–2300

Region V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street, Room 3244
Chicago, IL 60604
(312) 353–2220

Region VI
(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(972) 850-4145

Region VII
(IA,* KS, MO, NE)
City Center Square
Two Pershing Square
2300 Main Street, Suite 1010
Kansas City, MO 64108-2416
(816) 283-8745

Region VIII
(CO, MT, ND, SD, UT,* WY*)
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80201-5716
(720) 264-6550

Region IX
(AZ,* CA,* HI,* NV,* and American Samoa,
Guam and the Northern Mariana Islands)
90 7th Street, Suite 18-100
San Francisco, CA 94103
(415) 625–2547

Region X
(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553–5930

* These states and territories operate their own OSHA-approved job safety and health programs and cover state and local government employees as well as private sector employees. The Connecticut, New Jersey, New York and Virgin Islands plans cover public employees only. States with approved programs must have standards that are identical to, or at least as effective as, the Federal standards.
Note: To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-0SHA.

Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

OSHA FactSheet

Planning and Responding to Workplace Emergencies

Nobody expects an emergency or disaster. Yet emergencies and disasters can strike anyone, anytime, anywhere. Employers should establish effective safety and health management systems and prepare their workers to handle emergencies before they arise.

Planning

Where required by some Occupational Safety and Health Administration standards, firms with more than 10 employees must have a written emergency action plan; smaller companies may communicate their plans orally. Top management support and the commitment and involvement of all employees are essential to an effective emergency action plan.

Employers should review plans with employees when initially put in place and re-evaluate and amend the plan periodically whenever the plan itself, or employee responsibilities, change. Emergency procedures, including the handling of any toxic chemicals, should include:

- Escape procedures and escape route assignments.
- Special procedures for employees who perform or shut down critical plant operations.
- Systems to account for all employees after evacuation and for information about the plan.
- Rescue and medical duties for employees who perform them.
- Means for reporting fires and other emergencies.

Chain of Command

The employer should designate an emergency response coordinator and a backup coordinator. The coordinator may be responsible for plant-wide operations, public information and ensuring that outside aid is called. Having a backup coordinator ensures that a trained person is always available. Employees should know who the designated coordinator is. Duties of the coordinator and employer include:

- Determining what emergencies may occur and seeing that emergency procedures are developed to address each situation.
- Directing all emergency activities including evacuation of personnel.
- Ensuring that outside emergency services are notified when necessary.
- Directing the shutdown of plant operations when necessary.

Emergency Response Teams

Emergency response team members should be thoroughly trained for potential crises and physically capable of carrying out their duties. Team members need to know about toxic hazards in the workplace and be able to judge when to evacuate personnel or when to rely on outside help (e.g., when a fire is too large to handle). One or more teams must be trained in:

- Use of various types of fire extinguishers.
- First aid, including cardiopulmonary resuscitation (CPR) and self-contained breathing apparatus (SCBA).
- Requirements of the OSHA bloodborne pathogens standard.
- Shutdown procedures.
- Chemical spill control procedures.
- Search and emergency rescue procedures.
- Hazardous materials emergency response.

Response Activities

Effective emergency communication is vital. An alternate area for a communications center other than management offices should be established in the plans, and the emergency response coordinator should operate from this center. Management should provide emergency alarms and ensure that employees know how to report emergencies. An updated list of key personnel and off-duty telephone numbers should be maintained.

Accounting for personnel following evacuation is critical. A person in the control center should notify police or emergency response team members of persons believed missing.

Effective security procedures can prevent unauthorized access and protect vital records and equipment. Duplicate records of essential accounting files, legal documents and lists of employee relatives – to be notified in case of emergency – can be kept at off-site locations.

Training

Every employee needs to know details of the emergency action plan, including evacuation plans, alarm systems, reporting procedures for personnel, shutdown procedures, and types of potential emergencies. Any special hazards, such as flammable materials, toxic chemicals, radioactive sources or water-reactive substances, should be discussed with employees. Drills should be held at random intervals, at least annually, and should include outside police and fire authorities.

Training must be conducted at least annually and when employees are hired or when their job changes. Additional training is needed when new equipment, materials or processes are introduced, when the layout or design of the facility changes, when procedures have been updated or revised, or when exercises show that employee performance is inadequate.

Personal Protection

Employees exposed to or near accidental chemical splashes, falling objects, flying particles, unknown atmospheres with inadequate oxygen or toxic gases, fires, live electrical wiring, or similar emergencies need appropriate personal protective equipment.

Medical Assistance

First aid must be available within 3 to 4 minutes of an emergency. Worksites more than 3 to 4 minutes from an infirmary, clinic, or hospital should have at least one person on-site trained in first aid (available all shifts), have medical personnel readily available for advice and consultation, and develop written emergency medical procedures.

It is essential that first aid supplies are available to the trained first aid providers, that emergency phone numbers are placed in conspicuous places near or on telephones, and prearranged ambulance services for any emergency are available. It may help to coordinate an emergency action plan with the outsider responders such as the fire department, hospital emergency room, EMS providers and local HAZMAT teams.

Further Information

More detailed information on workplace emergencies is provided in "How to Plan for Workplace Emergencies and Evacuations" (OSHA 3088) available free on OSHA's website or from OSHA Publications, Room N3101, 200 Constitution Ave., N.W., Washington, D.C. 20210, telephone 1-800-321-OSHA, or local OSHA offices. Further information is also available in OSHA's Evacuation Plans and Procedure eTool and Emergency Preparedness and Response webpage

For more complete information:

OSHA Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

(800) 321-OSHA

4/2004

EXIT

OSHA FACT Sheet

Emergency Exit Routes

How would you escape from your workplace in an emergency? Do you know where all the exits are in case your first choice is too crowded? Are you sure the doors will be unlocked and that the exit access, such as a hallway, will not be blocked during a fire, explosion, or other crisis? Knowing the answers to these questions could keep you safe during an emergency.

What is an *exit route*?

An *exit route* is a continuous and unobstructed path of exit travel from any point within a workplace to a place of safety. An *exit route* consists of three parts:

- *Exit access* – portion of an *exit route* that leads to an exit.
- *Exit* – portion of an exit route that is generally separated from other areas to provide a protected way of travel to the *exit discharge*.
- *Exit discharge* – part of the *exit route* that leads directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside.

How many *exit routes* must a workplace have?

Normally, a workplace must have at least two *exit routes* to permit prompt evacuation of employees and other building occupants during an emergency. More than two exits are required, however, if the number of employees, size of the building, or arrangement of the workplace will not allow employees to evacuate safely. *Exit routes* must be located as far away as practical from each other in case one is blocked by fire or smoke.

Exception: If the number of employees, the size of the building, its occupancy, or the arrangement of the workplace allows all employees to evacuate safely during an emergency, one *exit route* is permitted.

What are some other design and construction requirements for *exit routes*?

- *Exit routes* must be permanent parts of the workplace.
- *Exit discharges* must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside. These *exit discharge* areas must be large enough to accommodate the building occupants likely to use the *exit route*.
- *Exit stairs* that continue beyond the level on which the *exit discharge* is located must be interrupted at that level by doors, partitions, or other effective means that clearly indicate the direction of travel leading to the *exit discharge*.
- *Exit route* doors must be unlocked from the inside. They must be free of devices or alarms that could restrict use of the *exit route* if the device or alarm fails.
- Side-hinged exit doors must be used to connect rooms to *exit routes*. These doors must swing out in the direction of exit travel if the room is to be occupied by more than 50 people or if the room is a high-hazard area.
- *Exit routes* must support the maximum permitted occupant load for each floor served, and the capacity of an *exit route* may not decrease in the direction of *exit route* travel to the *exit discharge*.
- Ceilings of *exit routes* must be at least 7 feet, 6 inches high.
- An exit access must be at least 28 inches wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access. Objects that project into the exit must not reduce its width.
- Outdoor *exit routes* are permitted but must meet the minimum height and width requirement for indoor *exit routes* and must
  - have guardrails to protect unenclosed sides if a fall hazard exists;
  - be covered if snow or ice is likely to accumulate, unless the employer can demonstrate accumulations will be removed before a slipping hazard exists;
  - be reasonably straight and have smooth, solid, substantially level walkways; and
  - not have a dead-end longer than 20 feet.

Emergency Exit Routes

What are the requirements for exits?

- *Exits* must be separated by fire resistant materials—that is, one-hour fire-resistance rating if the exit connects three or fewer stories and two-hour fire-resistance rating if the exit connects more than three floors.
- *Exits* are permitted to have only those openings necessary to allow access to the *exit* from occupied areas of the workplace or to the *exit discharge*. Openings must be protected by a self-closing, approved *fire door* that remains closed or automatically closes in an emergency.

What are the maintenance, safeguarding, and operational features for *exit routes*?

OSHA standards require employers to do the following:

- Keep e*xit routes* free of explosive or highly flammable furnishings and other decorations.
- Arrange *exit routes* so employees will not have to travel toward a high-hazard area unless the path of travel is effectively shielded from the high-hazard area.
- Ensure that e*xit routes* are unobstructed such as by materials, equipment, locked doors, or dead-end corridors.
- Ensure that safeguards designed to protect employees during an emergency remain in good working order.
- Provide lighting for *exit routes* adequate for employees with normal vision.
- Keep *exit route* doors free of decorations or signs that obscure the visibility of *exit route doors*.
- Post signs along the *exit access* indicating the direction of travel to the nearest *exit* and *exit discharge* if that direction is not immediately apparent. Also, the line-of-sight to an exit sign must be clearly visible at all times.
- Mark doors or passages along an *exit access* that could be mistaken for an *exit* "Not an Exit" or with a sign identifying its use (such as "Closet").
- Install "EXIT" signs in plainly legible letters.
- Renew fire-retardant paints or solutions often enough to maintain their fire-retardant properties.
- Maintain e*xit routes* during construction, repairs, or alterations.
- Provide an emergency alarm system to alert employees, unless employees can promptly see or smell a fire or other hazard in time to provide adequate warning to them.

Are employers required to have emergency action plans?

If you have *10 or fewer employees*, you may communicate your plan orally. If you have *more than 10 employees*, however, your plan must be written, kept in the workplace, and available for employee review. Although employers are required to have an emergency action plan (EAP) only when the applicable OSHA standard requires it, OSHA strongly recommends that all employers have an EAP. Here are the OSHA standards that require EAP's:

- Process Safety Management of Highly Hazardous Chemicals - 1910.119
- Fixed Extinguishing Systems, General - 1910.160
- Fire Detection Systems, 1910.164
- Grain Handling - 1910.272
- Ethylene Oxide - 1910.1047
- Methylenedianiline - 1910.1050
- 1,3-Butadiene - 1910.1051

What are the minimum elements of an emergency action plan?

- Procedures for reporting fires and other emergencies.
- Procedures for emergency evacuation, including the type of evacuation and *exit route* assignments.
- Procedures for employees who stay behind to continue critical plant operations.
- Procedures to account for all employees after evacuation.
- Procedures for employees performing rescue or medical duties.
- Name or job title of employees to contact for detailed plan information.
- Alarm system to alert workers.

In addition, you must designate and train employees to assist in a safe and orderly evacuation of other employees. You must also review the emergency action plan with each employee covered when the following occur:

- Plan is developed or an employee is assigned initially to a job.
- Employee's responsibilities under the plan changes.
- Plan is changed.

Emergency Exit Routes

Must all employers have fire prevention plans?

If you have *10 or fewer employees*, you may communicate your plan orally. If you have *more than 10 employees*, however, your plan must be written, kept in the workplace, and available for employee review. Although employers are only required to have a fire prevention plan (FPP) when the applicable OSHA standard requires it, OSHA strongly recommends that all employers have a fire prevention plan (FPP). The following OSHA standards require FPPs:

- Ethylene Oxide, 1910.1047
- Methylenedianiline - 1910.1050
- 1,3-Butadiene - 1910.1051

Here are the minimum provisions of a fire prevention plan:

- List of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard.
- Procedures to control accumulations of flammable and combustible waste materials.
- Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials.
- Name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires.
- Name or job title of employees responsible for the control of fuel source hazards.

In addition, when you assign employees to a job, you must inform them of any fire hazards they may be exposed to. You must also review with each employee those parts of the fire prevention plan necessary for self-protection.

How can I get more information on safety and health?

For more detail on exit routes and related standards see *Exit Routes, Emergency Action Plans, and Fire Prevention Plans* in *Title 29 of the Code of Federal Regulations* (*CFR*) 1910.33-39; and OSHA Directive CPL 2-1.037, *Compliance Policy for Emergency Action Plans and Fire Prevention Plans*. In addition, employers who comply with the exit route provisions of the National Fire Protection Association's 101-2000, *Life Safety Code*, will be considered in compliance with the OSHA requirements for exit routes.

OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through workplace consultation, voluntary protection programs, strategic partnerships, alliances, state plans, grants, training, and education. OSHA's *Safety and Health Program Management Guidelines* (54 *Federal Register* 3904-3916, 1/26/89) detail elements critical to the development of a successful safety and health management system. This and other information are available on OSHA's website.

- For one free copy of OSHA publications, send a self-addressed mailing label to OSHA Publications Office, 200 Constitution Avenue N.W., N-3101, Washington, DC 20210; or send a request to our fax at (202) 693-2498, or call us toll-free at (800) 321-OSHA.
- To order OSHA publications online at **www.osha.gov**, go to **Publications** and follow the instructions for ordering.
- To file a complaint by phone, report an emergency, or get OSHA advice, assistance, or products, contact your nearest OSHA office under the U.S. Department of Labor listing in your phone book, or call toll-free at **(800) 321-OSHA (6742)**. The teletypewriter (TTY) number is (877) 889-5627.
- To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website.

This is one in a series of informational fact sheets highlighting OSHA programs, policies, or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to *Title 29 of the Code of Federal Regulations*. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999. See also OSHA's website at **www.osha.gov**.

OSHA
Occupational Safety and Health Administration
U.S. Department of Labor
2003

How to Plan for Workplace Emergencies and Evacuations

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3088
2001 (Revised)

This booklet provides a generic overview of a standards-related topic. This publication does not alter or determine compliance responsibilities, which are described in the OSHA standards and the Occupational Safety and Health Act. Because interpretations and enforcement policy may change over time, the best sources for additional guidance on OSHA compliance requirements are current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts. This publication is in the public domain and may be reproduced fully or partially without permission. Source credit is requested but not required.

OSHA will make this information available to sensory impaired individuals upon request. Call (202) 693-1999.

How to Plan for Workplace Emergencies and Evacuations

U.S. Department of Labor
Elaine L. Chao, Secretary

John L. Henshaw, Assistant Secretary
Occupational Safety and Health Administration

OSHA 3088
2001 (Revised)

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Introduction

Nobody expects an emergency or disaster – especially one that affects them, their employees, and their business personally. Yet the simple truth is that emergencies and disasters can strike anyone, anytime, and anywhere. You and your employees could be forced to evacuate your company when you least expect it.

This booklet is designed to help you, the employer, plan for that possibility. The best way to protect yourself, your workers, and your business is to expect the unexpected and develop a well-thought-out emergency action plan to guide you when immediate action is necessary.

What is a workplace emergency?

A workplace emergency is an unforeseen situation that threatens your employees, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage. Emergencies may be natural or manmade and include the following:

- Floods,
- Hurricanes,
- Tornadoes,
- Fires,
- Toxic gas releases,
- Chemical spills,
- Radiological accidents,
- Explosions,
- Civil disturbances, and
- Workplace violence resulting in bodily harm and trauma.

How do you protect yourself, your employees, and your business?

The best way is to prepare to respond to an emergency before it happens. Few people can think clearly and logically in a crisis, so it is important to do so in advance, when you have time to be thorough.

Brainstorm the worst-case scenarios. Ask yourself what you would do if the worst happened. What if a fire broke out in your boiler room? Or a hurricane hit your building head-on? Or a train carrying hazardous waste derailed while passing your loading dock? Once you have identified potential emergencies, consider how they would affect you and your workers and how you would respond.

What is an emergency action plan?

An emergency action plan covers designated actions employers and employees must take to ensure employee safety from fire and other emergencies. Not all employers are required to establish an emergency action plan. See the flowchart on page 11 to determine if you are. Even if you are not specifically required to do so, compiling an emergency action plan is a good way to protect yourself, your employees, and your business during an emergency.

Putting together a comprehensive emergency action plan that deals with all types of issues specific to your worksite is not difficult.

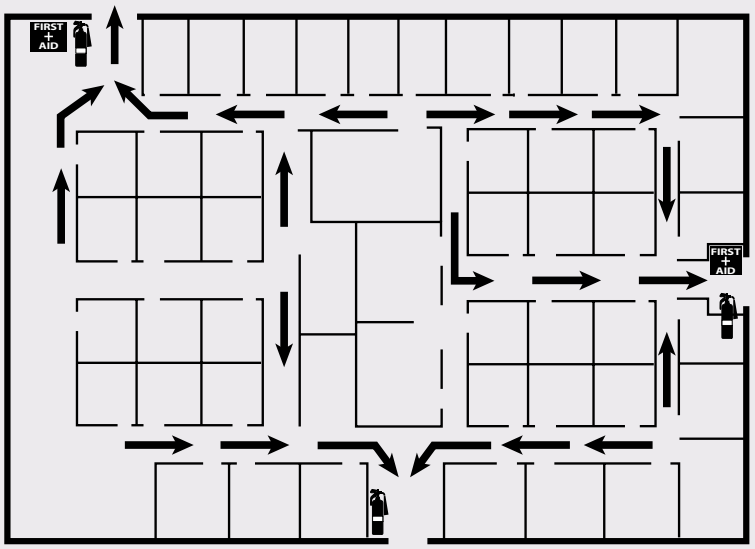
What should your emergency action plan include?

You may find it beneficial to include your management team and employees in the process. Explain your goal of protecting lives and property in the event of an emergency, and ask for their help in establishing and implementing your emergency action plan. Their commitment and support are critical to the plan's success.

When developing your emergency action plan, it's a good idea to look at a wide variety of potential emergencies that could occur in your workplace. It should be tailored to your worksite and include information about all potential sources of emergencies. Developing an emergency action plan means you should do a hazard assessment to determine what, if any, physical or chemical hazards in your workplaces could cause an emergency. If you have more than one worksite, each site should have an emergency action plan.

At a minimum, your emergency action plan must include the following:

- A preferred method for reporting fires and other emergencies;
- An evacuation policy and procedure;
- Emergency escape procedures and route assignments, such as floor plans, workplace maps, and safe or refuge areas;



- Names, titles, departments, and telephone numbers of individuals both within and outside your company to contact for additional information or explanation of duties and responsibilities under the emergency plan;
- Procedures for employees who remain to perform or shut down critical plant operations, operate fire extinguishers, or perform other essential services that cannot be shut down for every emergency alarm before evacuating; and
- Rescue and medical duties for any workers designated to perform them.

You also may want to consider designating an assembly location and procedures to account for all employees after an evacuation.

In addition, although they are not specifically required by OSHA, you may find it helpful to include in your plan the following:

- The site of an alternative communications center to be used in the event of a fire or explosion; and
- A secure on- or offsite location to store originals or duplicate copies of accounting records, legal documents, your employees' emergency contact lists, and other essential records.

How do you alert employees to an emergency?

Your plan must include a way to alert employees, including disabled workers, to evacuate or take other action, and how to report emergencies, as required. Among the steps you must take are the following:

- Make sure alarms are distinctive and recognized by all employees as a signal to evacuate the work area or perform actions identified in your plan;
- Make available an emergency communications system such as a public address system, portable radio unit, or other means to notify employees of the emergency and to contact local law enforcement, the fire department, and others; and
- Stipulate that alarms must be able to be heard, seen, or otherwise perceived by everyone in the workplace. You might want to consider providing an auxiliary power supply in the event that electricity is shut off. (*29 CFR* 1910.165(b)(2) offers more information on alarms.)

Although it is not specifically required by OSHA, you also may want to consider the following:

- Using tactile devices to alert employees who would not otherwise be able to recognize an audible or visual alarm; and
- Providing an updated list of key personnel such as the plant manager or physician, in order of priority, to notify in the event of an emergency during off-duty hours.

How do you develop an evacuation policy and procedures?

A disorganized evacuation can result in confusion, injury, and property damage. That is why when developing your emergency action plan it is important to determine the following:

- Conditions under which an evacuation would be necessary;
- A clear chain of command and designation of the person in your business authorized to order an evacuation or shutdown. You may want to designate an "evacuation warden" to assist others in an evacuation and to account for personnel;
- Specific evacuation procedures, including routes and exits. Post these procedures where they are easily accessible to all employees;
- Procedures for assisting people with disabilities or who do not speak English;
- Designation of what, if any, employees will continue or shut down critical operations during an evacuation. These people must be

capable of recognizing when to abandon the operation and evacuate themselves; and

- A system for accounting for personnel following an evacuation. Consider employees' transportation needs for community-wide evacuations.

Under what conditions should you call for an evacuation?

In the event of an emergency, local emergency officials may order you to evacuate your premises. In some cases, they may instruct you to shut off the water, gas, and electricity. If you have access to radio or television, listen to newscasts to keep informed and follow whatever official orders you receive.

In other cases, a designated person within your business should be responsible for making the decision to evacuate or shut down operations. Protecting the health and safety of everyone in the facility should be the first priority. In the event of a fire, an immediate evacuation to a predetermined area away from the facility is the best way to protect employees. On the other hand, evacuating employees may not be the best response to an emergency such as a toxic gas release at a facility across town from your business.

The type of building you work in may be a factor in your decision. Most buildings are vulnerable to the effects of disasters such as tornadoes, earthquakes, floods, or explosions. The extent of the damage depends on the type of emergency and the building's construction. Modern factories and office buildings, for example, are framed in steel and are structurally more sound than neighborhood business premises may be. In a disaster such as a major earthquake or explosion, however, nearly every type of structure will be affected. Some buildings will collapse and others will be left with weakened floors and walls.

What is the role of coordinators and evacuation wardens during an emergency?

When drafting your emergency action plan, you may wish to select a responsible individual to lead and coordinate your emergency plan and evacuation. It is critical that employees know who the coordinator is and understand that person has the authority to make decisions during emergencies.

The coordinator should be responsible for the following:

- Assessing the situation to determine whether an emergency exists requiring activation of your emergency procedures;
- Supervising all efforts in the area, including evacuating personnel;

- Coordinating outside emergency services, such as medical aid and local fire departments, and ensuring that they are available and notified when necessary; and
- Directing the shutdown of plant operations when required.

You also may find it beneficial to coordinate the action plan with other employers when several employers share the worksite, although OSHA standards do not specifically require this.

In addition to a coordinator, you may want to designate evacuation wardens to help move employees from danger to safe areas during an emergency. Generally, one warden for every 20 employees should be adequate, and the appropriate number of wardens should be available at all times during working hours.

Employees designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes. All employees and those designated to assist in emergencies should be made aware of employees with special needs who may require extra assistance, how to use the buddy system, and hazardous areas to avoid during an emergency evacuation.

How do you establish evacuation routes and exits?

When preparing your emergency action plan, designate primary and secondary evacuation routes and exits. To the extent possible under the conditions, ensure that evacuation routes and emergency exits meet the following conditions:

- Clearly marked and well lit;
- Wide enough to accommodate the number of evacuating personnel;
- Unobstructed and clear of debris at all times; and
- Unlikely to expose evacuating personnel to additional hazards.

If you prepare drawings that show evacuation routes and exits, post them prominently for all employees to see.

How do you account for employees after an evacuation?

Accounting for all employees following an evacuation is critical. Confusion in the assembly areas can lead to delays in rescuing anyone trapped in the building, or unnecessary and dangerous search-and-rescue operations. To ensure the fastest, most accurate accountability of your employees, you may want to consider including these steps in your emergency action plan:

- Designate assembly areas where employees should gather after evacuating;
- Take a head count after the evacuation. Identify the names and last known locations of anyone not accounted for and pass them to the official in charge;
- Establish a method for accounting for non-employees such as suppliers and customers; and

- Establish procedures for further evacuation in case the incident expands. This may consist of sending employees home by normal means or providing them with transportation to an offsite location.

How should you plan for rescue operations?

It takes more than just willing hands to save lives. Untrained individuals may endanger themselves and those they are trying to rescue. For this reason, it is generally wise to leave rescue work to those who are trained, equipped, and certified to conduct rescues.

If you have operations that take place in permit-required confined spaces, you may want your emergency action plan to include rescue procedures that specifically address entry into each confined space. (See also OSHA Publication 3138, *Permit-Required Confined Spaces*, and the National Institute for Occupational Safety and Health (NIOSH) Publication 80-106, *Criteria for a Recommended Standard…Working in Confined Spaces*.)

What medical assistance should you provide during an emergency?

If your company does not have a formal medical program, you may want to investigate ways to provide medical and first-aid services. If medical facilities are available near your worksite, you can make arrangements for them to handle emergency cases. Provide your employees with a written emergency medical procedure to minimize confusion during an emergency.

If an infirmary, clinic, or hospital is not close to your workplace, ensure that onsite person(s) have adequate training in first aid. The American Red Cross, some insurance providers, local safety councils, fire departments, or other resources may be able to provide this training. Treatment of a serious injury should begin within 3 to 4 minutes of the accident.

Consult with a physician to order appropriate first-aid supplies for emergencies. Medical personnel must be accessible to provide advice and consultation in resolving health problems that occur in the workplace. Establish a relationship with a local ambulance service so transportation is readily available for emergencies.

What role should employees play in your emergency action plan?

The best emergency action plans include employees in the planning process, specify what employees should do during an emergency, and ensure that employees receive proper training for emergencies. When you include your employees in your planning, encourage them to offer suggestions about potential hazards, worst-case scenarios, and proper emergency responses. After you develop the plan, review it with your employees to make sure everyone knows what to do before, during and after an emergency.

Keep a copy of your emergency action plan in a convenient location where employees can get to it, or provide all employees a copy. If you have 10 or fewer employees, you may communicate your plan orally.

What employee information should your plan include?

In the event of an emergency, it could be important to have ready access to important personal information about your employees. This includes their home telephone numbers, the names and telephone numbers of their next of kin, and medical information.

What type of training do your employees need?

Educate your employees about the types of emergencies that may occur and train them in the proper course of action. The size of your workplace and workforce, processes used, materials handled, and the availability of onsite or outside resources will determine your training requirements. Be sure all your employees understand the function and elements of your emergency action plan, including types of potential emergencies, reporting procedures, alarm systems, evacuation plans, and shutdown procedures. Discuss any special hazards you may have onsite such as flammable materials, toxic chemicals, radioactive sources, or water-reactive substances. Clearly communicate to your employees who will be in charge during an emergency to minimize confusion.

General training for your employees should address the following:

- Individual roles and responsibilities;
- Threats, hazards, and protective actions;
- Notification, warning, and communications procedures;
- Means for locating family members in an emergency;
- Emergency response procedures;
- Evacuation, shelter, and accountability procedures;
- Location and use of common emergency equipment; and
- Emergency shutdown procedures.

You also may wish to train your employees in first-aid procedures, including protection against bloodborne pathogens; respiratory protection, including use of an escape-only respirator; and methods for preventing unauthorized access to the site.

Once you have reviewed your emergency action plan with your employees and everyone has had the proper training, it is a good idea to hold practice drills as often as necessary to keep employees prepared. Include outside resources such as fire and police departments when possible. After each drill, gather management and employees to evaluate the effectiveness of the drill. Identify the strengths and weaknesses of your plan and work to improve it.

How often do you need to train your employees?

Review your plan with all your employees and consider requiring annual training in the plan. Also offer training when you do the following:

- Develop your initial plan;
- Hire new employees;
- Introduce new equipment, materials, or processes into the workplace that affect evacuation routes;
- Change the layout or design of the facility; and
- Revise or update your emergency procedures.

What does your plan need to include about hazardous substances?

No matter what kind of business you run, you could potentially face an emergency involving hazardous materials such as flammable, explosive, toxic, noxious, corrosive, biological, oxidizable, or radioactive substances.

The source of the hazardous substances could be external, such as a local chemical plant that catches on fire or an oil truck that overturns on a nearby freeway. The source may be within your physical plant. Regardless of the source, these events could have a direct impact on your employees and your business and should be addressed by your emergency action plan.

If you use or store hazardous substances at your worksite, you face an increased risk of an emergency involving hazardous materials and should address this possibility in your emergency action plan. OSHA's Hazard Communication Standard (*29 CFR* 1910.1200) requires employers who use hazardous chemicals to inventory them, keep the manufacturer-supplied Material Safety Data Sheets (MSDSs) for them in a place accessible to workers, label containers of these chemicals with their hazards, and train employees in ways to protect themselves against those hazards. A good way to start is to determine from your hazardous chemical inventory what hazardous chemicals you use and to gather the MSDSs for the chemicals. MSDSs describe the hazards that a chemical may present, list the precautions to take when handling, storing, or using the substance, and outline emergency and first-aid procedures.

For specific information on how to respond to emergencies involving hazardous materials and hazardous waste operations, refer to *29 CFR,* Part 1910.120(q) and OSHA Publication 3114, *Hazardous Waste and Emergency Response Operations*. Both are available online at www.osha.gov.

What special equipment should you provide for emergencies?

Your employees may need personal protective equipment to evacuate during an emergency. Personal protective equipment must be based on the potential hazards in the workplace. Assess your workplace to determine potential hazards and the appropriate controls and protective equipment for those hazards. Personal protective equipment may include items such as the following:

- Safety glasses, goggles, or face shields for eye protection;
- Hard hats and safety shoes for head and foot protection;
- Proper respirators;
- Chemical suits, gloves, hoods, and boots for body protection from chemicals;

- Special body protection for abnormal environmental conditions such as extreme temperatures; and
- Any other special equipment or warning devices necessary for hazards unique to your worksite.

How do you choose appropriate respirators and other equipment?

Consult with health and safety professionals before making any purchases. Respirators selected should be appropriate to the hazards in your workplace, meet OSHA standards criteria, and be certified by the National Institute for Occupational Safety and Health.

Respiratory protection may be necessary if your employees must pass through toxic atmospheres of dust, mists, gases, or vapors, or through oxygen-deficient areas while evacuating. There are four basic categories of respirators for use in different conditions. All respirators must be NIOSH-certified under the current *29 CFR* 1910.134. See also OSHA's *Small Entity Compliance Guide for Respiratory Protection, 1999*, online at www.osha.gov.

Who should you coordinate with when drafting your emergency action plan?

Although there is no specific OSHA requirement to do so, you may find it useful to coordinate your efforts with any other companies or employee groups in your building to ensure the effectiveness of your plan. In addition, if you rely on assistance from local emergency responders such as the fire department, local HAZMAT teams, or other outside responders, you may find it useful to coordinate your emergency plans with these organizations. This ensures that you are aware of the capabilities of these outside responders and that they know what you expect of them.

What are OSHA's requirements for emergencies?

Some of the key OSHA requirements for emergencies can be found in the following sections of the agency's General Industry Occupational Safety and Health Standards (*29 CFR* 1910).

Subpart E – Means of Egress

1910.37	Means of egress
1910.38	Employee emergency plans and fire prevention plans
Appendix	Means of egress

Subpart H – Hazardous Materials

1910.119	Process safety management of highly hazardous chemicals
1910.120	Hazardous waste operations and emergency response

Subpart I – Personal Protective Equipment

1910.133	Eye and face protection
1910.134	Respiratory protection
1910.135	Occupational head protection
1910.136	Occupational foot protection
1910.138	Hand protection

Subpart J – General Environmental Controls

1910.146	Permit-required confined spaces
1910.147	Control of hazardous energy sources

Subpart K – Medical and First Aid

1910.151	Medical services and first aid

Subpart L – Fire Protection

1910.155-156	Fire protection and fire brigades
1910.157-163	Fire suppression equipment
1910.164	Fire detection systems
1910.165	Employee alarm systems
Appendices A-E of Subpart L	

Subpart R – Special Industries, Electrical Power Generation, Transmission, and Distribution

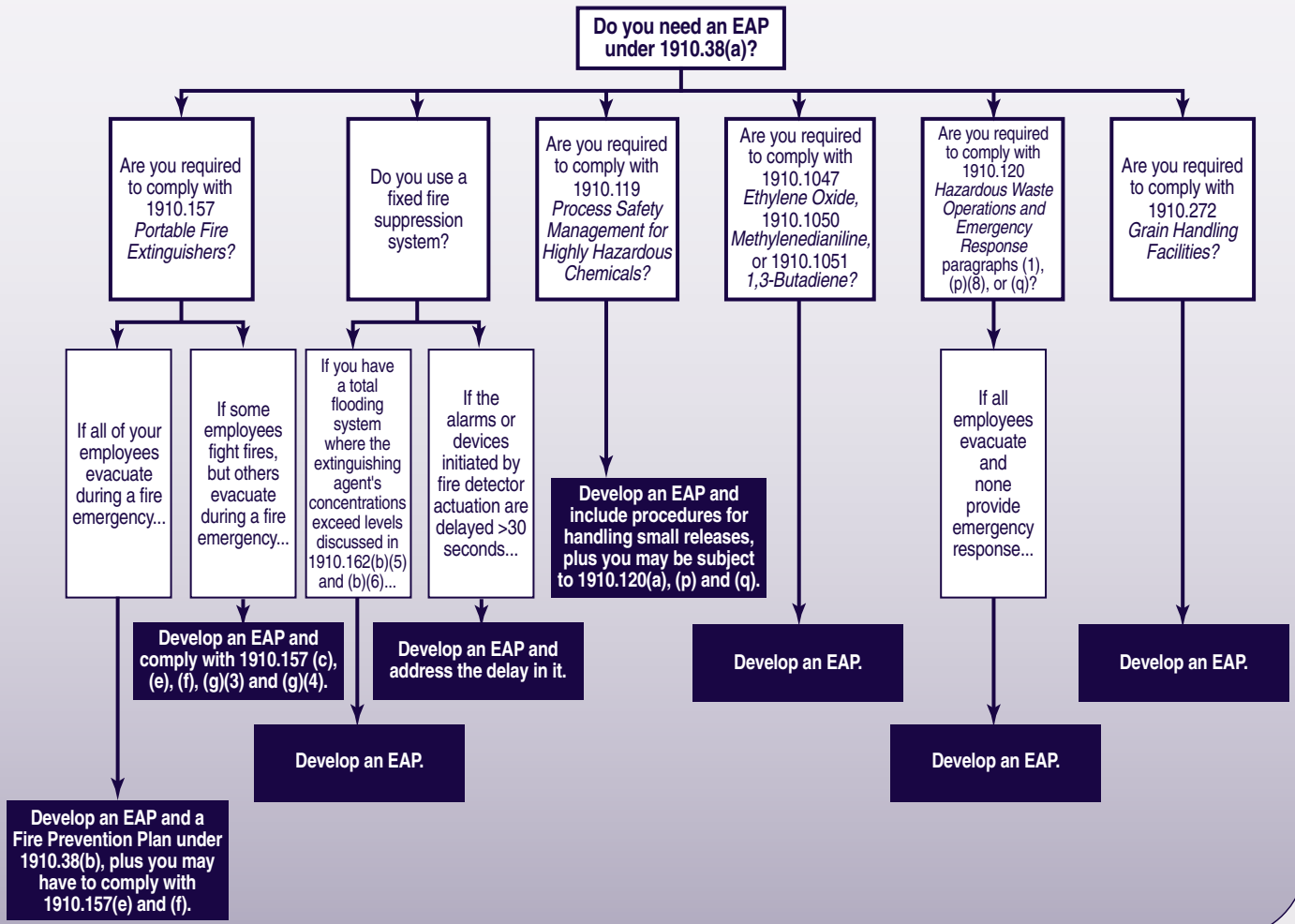
Subpart Z – Toxic and Hazardous Substances

1910.1030	Bloodborne pathogens
1910.1200	Hazard communication

What other OSHA standards address emergency planning requirements?

In addition to *29 CFR* 1910.38(a), several other OSHA standards address emergency planning requirements. These include the *29 CFR* 1910.120(q), *Hazardous Waste Operations and Emergency Response*; *29 CFR* 1910.156, *Fire Brigades*; and *29 CFR* 1910.146(k), *Permit-Required Confined Spaces*. The OSHA Publication 3122, *Principal Emergency Response and Preparedness Requirements in OSHA Standards and Guidance for Safety and Health Problems*, provides a broad view of emergency planning requirements across OSHA standards.

Standards That Refer to 1910.38(a) *Emergency Action Plan (EAP)*
and Additional Emergency Planning Procedures



What assistance does OSHA provide?

OSHA provides a wide range of references and services to help employers and employees improve workplace health and safety and comply with regulatory requirements. These include the following:

- Education and training opportunities,
- Publications,
- Electronic services,
- Free onsite consultation services, and
- Participation in the Voluntary Protection Programs.

To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321 OSHA or your nearest regional office, listed in Appendix 1. The teletypewriter (TTY) number is 1-877-889-5627.

Information on these and other OSHA programs and services is posted on the agency website at www.osha.gov.

What education and training does OSHA offer?

OSHA area offices offer a variety of information services including publications, audiovisual aids, technical advice, and speakers for special engagements.

In addition, OSHA's Training Institute in Des Plaines, IL, provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants, federal agency employees, and private-sector employers, employees, and their representatives.

Due to the high demand for OSHA Training Institute courses, OSHA Training Institute Education Centers also offer them at sites throughout the United States. These centers are nonprofit colleges, universities, and other organizations selected through a competitive process.

OSHA also provides grants to nonprofit organizations to conduct specialized workplace training and education not available from other sources. Grants are awarded annually. Recipients contribute 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education by mail at 1555 Times Drive, Des Plaines IL 60018; by phone at (847) 297-4810, or by fax at (847) 297-4874.

What other publications does OSHA offer?

OSHA offers more than 100 documents, including brochures, fact sheets, posters, pocket cards, flyers, technical documents, and a quarterly magazine. These documents are available online at www.osha.gov or by calling (202) 693-1888. Among the titles are the following:

- *Access to Medical and Exposure Records* – OSHA 3110
- *All About OSHA* – OSHA 2056
- *Chemical Hazard Communication* – OSHA 3084
- *Consultation Services for the Employer* – OSHA 3047
- *Controlling Electrical Hazards* – OSHA 3075
- *Employer Rights and Responsibilities Following an OSHA Inspection* – OSHA 3000
- *Employee Workplace Rights* – OSHA 3021
- *Hazardous Waste and Emergency Response* – OSHA 3114
- *Job Hazard Analysis* – OSHA 3071
- *OSHA Handbook for Small Business* – OSHA 2209
- *Personal Protective Equipment* – OSHA 3077
- *Respirator Protection* – OSHA 3079

What electronic services does OSHA provide?

OSHA standards, interpretations, directives, and additional information are posted on the agency's website at www.osha.gov. Visits to the site continue to increase, with nearly 1.4 million visitors using the site each month for a total of 23 million hits.

Among the popular Internet offerings are electronic tools to help small businesses understand and comply with OSHA regulations and promote safety and health in their workplaces. These e-Tools include the Expert Advisors, interactive software programs that help businesses identify workplace hazards. By answering a few simple questions on their computer screens, employers get reliable answers on how OSHA regulations apply to their unique work sites.

Another popular Internet product is eCATS, OSHA's electronic Compliance Assistance Tools, which help businesses identify and correct workplace hazards. A totally new generation of e-Tools coming soon will combine both decision tree logic software and graphics, giving users enhanced capabilities and the best of both worlds.

In addition, a wide variety of OSHA materials including standards, interpretations, directives, and more can be purchased on CD-ROM from the Government Printing Office. To order, write to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Specify *OSHA Regulations, Documents and Technical Information on CD-ROM, (ORDT)*, S/N 729-1300000-5. The price is $45 per year ($57.50 overseas); single copy $17 ($21.25 overseas).

What free onsite consultation services does OSHA provide?

The OSHA Consultation Service offers free onsite safety and health consultation services to help employers establish and maintain safe and healthful workplaces. The service is funded largely by OSHA and is delivered by professional safety and health consultants within state governments. Developed primarily for smaller employers with more hazardous operations, the service includes an appraisal of all mechanical systems, physical work practices, environmental workplace hazards, and all aspects of the employer's job safety and health program.

The onsite consultation program is separate from OSHA's inspection efforts. No penalties are proposed or citations issued for safety or health problems identified by an OSHA consultant. The service is confidential. The employer's and firm's name, and any information about the workplace, including any unsafe or unhealthful working conditions the consultant identifies, are not reported routinely to the OSHA inspection staff. The employer, however, is obligated to correct any serious job safety and health hazards identified in a timely manner, and commits to do so when requesting the service.

For more information, see Appendix 3 for a list of contact telephone numbers.

What are the Voluntary Protection Programs?

The Voluntary Protection Programs, or VPPs, recognize and promote effective safety and health program management. Companies in the VPP have strong safety and health programs, implemented and managed cooperatively by their management and labor forces in cooperation with OSHA. Sites approved for VPP's three programs – Star, Merit, and Demonstration – meet and maintain rigorous standards. Benefits to participants include the following:

- Lost-workday case rates generally 60 to 80 percent below industry averages;
- Reduced workers' compensation and other injury- and illness-related costs;
- Improved employee motivation to work safely, leading to better quality and productivity;
- Positive community recognition and interaction;
- Further improvement and revitalization of already good safety and health programs; and
- Partnership with OSHA.

For more information, contact the VPP manager in your OSHA regional office, visit OSHA's website, or see Appendix 1 for a list of telephone numbers.

What partnership opportunities does OSHA provide?

OSHA has initiated partnerships with employers, employees, and employee representatives in a wide range of industries to encourage, assist, and recognize efforts to eliminate workplace hazards. Participants work together to identify a common goal, develop plans to achieve it, and implement those plans in a cooperative way. Partnerships can transform relationships between OSHA and an employer or entire industry. Former adversaries recognize that working together to solve workplace safety and health problems is to everyone's advantage.

For more information, contact your OSHA regional office. See Appendix 1 for a list of telephone numbers.

What is the value of a good safety and health program?

A good, effectively managed worker safety and health program can be a big factor in reducing work-related injuries and illnesses and their related costs. OSHA offers voluntary guidelines to help employers and employees in workplaces it covers develop effective safety and health programs. *Safety and Health Program Management Guidelines (Federal Register* 54(18): 3908-3916, January 26, 1989) identifies four general elements critical to a successful safety and health management program. These are:

- Management leadership and employee involvement;
- An analysis of worksite hazards;
- Use of hazard prevention and control initiatives; and
- Safety and health training.

These guidelines are posted on the OSHA website at www.osha-slc.gov/FedReg_osha_data/FED19890126.html. See also OSHA's Safety and Health Management Systems eCAT at www.osha-slc.gov/SLTC/safetyhealthecat/index.html.

What is the role of state programs?

The *Occupational Safety and Health Act of 1970* encourages states to develop and operate their own job safety and health plans. States that do so must adopt standards and enforce requirements that are at least as effective as federal requirements. Twenty-four states and two territories have adopted their own plans, three of which cover only public employees. For more information, visit OSHA's website and see Appendix 2 for a listing of states and territories with approved plans.

What other groups or associations can help me?

Various organizations can provide you with safety and health information that may help you in formulating your emergency action plan. A few are listed here.

Safety Data Sheets, Guides and Manuals

- *AIHA Hygienic Guide Series*. American Industrial Hygiene Association, 2700 Prosperity Avenue, Fairfax, VA 22031.
- *ANSI Standards, Z37 Series, Acceptable Concentrations of Toxic Dusts and Gases*. American National Standards Institute, 11West 42nd Street, New York, NY 10036.

- *ASTM Standards and Related Material*. American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

Safety Standards and Specifications Groups

- American National Standards Institute, 11 West 42nd Street, New York, NY 10036. Coordinates and administers the federal voluntary standardization system in the United States.
- American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103. The world's largest source of voluntary consensus standards for materials, products, systems, and services.

Fire Protection Organizations

- Factory Insurance Association, 85 Woodland Street, Hartford, CT 06105. Composed of capital stock insurance companies that provide engineering, inspection, and loss-adjustment services.
- Factory Mutual System, 1151 Boston-Providence Turnpike, Norwood, MA 02062. An industrial fire protection, engineering, and inspection bureau established by mutual fire insurance companies.
- National Fire Protection Association, 470 Batterymarch Park, Quincy, MA 02269. A clearinghouse for information on fire protection and prevention as well as NFPA standards.
- Underwriter Laboratories, Inc., 207 East Ohio Street, Chicago, IL 60611. A nonprofit organization that publishes annual lists of manufacturers that provide products meeting appropriate standards.

Appendices

Appendix 1
OSHA Regional and Area Office Directory

OSHA Regional Offices

REGION I
(CT,* ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565-9860

REGION II
(NJ,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378

REGION III
(DE, DC, MD,* PA,* VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900

REGION IV
(AL, FL, GA, KY,* MS, NC,* SC,* TN*)
Atlanta Federal Center
61 Forsyth Street, SW, Room 6T50
Atlanta, GA 30303
(404) 562-2300

REGION V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street, Room 3244
Chicago, IL 60604
(312) 353-2220

REGION VI
(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(214) 767-4731 or 4736 x224

REGION VII
(IA,* KS, MO, NE)
City Center Square
1100 Main Street, Suite 800
Kansas City, MO 64105
(816) 426-5861

REGION VIII
(CO, MT, ND, SD, UT,* WY*)
1999 Broadway, Suite 1690
Denver, CO 80202-5716
(303) 844-1600

REGION IX
(American Samoa, AZ,* CA,* HI, NV*)
71 Stevenson Street, Room 420
San Francisco, CA 94105
(415) 975-4310

REGION X
(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553-5930

* These states and territories operate their own OSHA-approved job safety and health programs (Connecticut, New Jersey, and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective as, the federal standard.

OSHA Area Offices

Birmingham, AL	(205) 731-1534
Mobile, AL	(334) 441-6131
Anchorage, AK	(907) 271-5152
Phoenix, AZ	(602) 640-2348
Little Rock, AR	(501) 324-6291(5818)
San Diego, CA	(619) 557-5909
Sacramento, CA	(916) 566-7471
Denver, CO	(303) 844-5285
Englewood, CO	(303) 843-4500
Bridgeport, CT	(203) 579-5581
Hartford, CT	(860) 240-3152
Wilmington, DE	(302) 573-6518
Fort Lauderdale, FL	(954) 424-0242
Jacksonville, FL	(904) 232-2895
Tampa, FL	(813) 626-1177
Savannah, GA	(912) 652-4393
Smyrna, GA	(770) 984-8700
Tucker, GA	(770) 493-6644/6742
Boise, ID	(208) 321-2960
Calumet City, IL	(708) 891-3800
Des Plaines, IL	(847) 803-4800
Fairview Heights, IL	(618) 632-8612
North Aurora, IL	(630) 896-8700
Peoria, IL	(309) 671-7033
Indianapolis, IN	(317) 226-7290
Des Moines, IA	(515) 284-4794
Wichita, KS	(316) 269-6644
Frankfort, KY	(502) 227-7024
Baton Rouge, LA	(225) 389-0474/0431
Bangor, ME	(207) 941-8177
Portland, ME	(207) 780-3178
August, ME	(207) 622-8417
Linthicum, MD	(410) 865-2055/2056

Braintree, MA	(617) 565-6924
Methuen, MA	(617) 565-8110
Springfield, MA	(413) 785-0123
Lansing, MI	(517) 327-0904
Minneapolis, MN	(612) 664-5460
Jackson, MS	(601) 965-4606
Kansas City, MO	(816) 483-9531
St. Louis, MO	(314) 425-4289
Billings, MT	(406) 247-7494
Raleigh, NC	(919) 856-4770
Omaha, NE	(402) 221-3182
Carson City, NV	(775) 885-6963
Concord, NH	(603) 225-1629
Avenel, NJ	(732) 750-3270
Hasbrouck Heights, NJ	(201) 288-1700
Marlton, NJ	(609) 757-5181
Parsippany, NJ	(973) 263-1003
Albuquerque, NM	(505) 248-5302
Albany, NY	(518) 464-4338
Bayside, NY	(718) 279-9060
Bowmansville, NY	(716) 684-3891
North Syracuse, NY	(315) 451-0808
Tarrytown, NY	(914) 524-7510
Westbury, NY	(516) 334-3344
Bismark, ND	(701) 250-4521
Cincinnati, OH	(513) 841-4132
Cleveland, OH	(216) 522-3818
Columbus, OH	(614) 469-5582
Toledo, OH	(419) 259-7542
Oklahoma City, OK	(405) 231-5351/5389
Portland, OR	(503) 326-2251
Allentown, PA	(610) 776-0592
Erie, PA	(814) 833-5758
Harrisburg, PA	(717) 782-3902
Philadelphia, PA	(215) 597-4955
Pittsburgh, PA	(412) 395-4903
Wilkes-Barre, PA	(570) 826-6538
Guaynabo, PR	(787) 277-1560
Providence, RI	(401) 528-4669
Columbia, SC	(803) 765-5904
Nashville, TN	(615) 781-5423
Austin, TX	(512) 916-5783/5788
Corpus Christi, TX	(512) 888-3420
Dallas, TX	(214) 320-2400/2558
El Paso, TX	(915) 534-6251
Fort Worth, TX	(817) 428-2470 (485-7647)
Houston, TX	(281) 591-2438/2787
Houston, TX	(281) 286-0583/0584
Lubbock, TX	(806) 472-7681/7685
Salt Lake City, UT	(801) 530-6901

Norfolk, VA	(757) 441-3820
Bellevue, WA	(206) 553-7520
Charleston, WV	(304) 347-5937
Appleton, WI	(920) 734-4521
Eau Claire, WI	(715) 832-9019
Madison, WI	(608) 264-5388
Milwaukee, WI	(414) 297-3315

Appendix 2
OSHA-Approved Safety and Health Plans

Juneau, AK	(907) 465-2700
Phoenix, AZ	(602) 542-5795
San Francisco, CA	(415) 703-5050
Wethersfield, CT	(860) 566-5123
Honolulu, HI	(808) 586-8844
Indianapolis, ID	(317) 232-2378
Des Moines, IA	(515) 281-3447
Indianapolis, IN	(317) 232-3325
Frankfort, KY	(502) 564-3070
Baltimore, MD	(410) 767-2215
Lansing, MI	(517) 373-7230
St. Paul, MN	(651) 296-2342
Raleigh, NC	(919) 807-2900
Trenton, NJ	(609) 292-2975
Santa Fe, NM	(505) 827-2850
Carson City, NV	(775) 687-3032
Albany, NY	(518) 457-2741
Salem, OR	(503) 378-3272
Hato Rey, PR	(787) 754-2119
Columbia, SC	(803) 896-4300
Nashville, TN	(615) 741-2582
Salt Lake City, UT	(801) 530-6901
Richmond, VA	(804) 786-2377
Christiansted, St. Croix, VI	(340) 773-1990
Montpelier VT	(802) 828-2288
Olympia, WA	(360) 902-4200
	(360) 902-5430
Cheyenne, WY	(307) 777-7786

Appendix 3
OSHA Consultation Offices

Anchorage, AK	(907) 269-4957
Tuscaloosa, AL	(205) 348-3033
Little Rock, AR	(501) 682-4522
Phoenix, AZ	(602) 542-1695
Sacramento, CA	(916) 574-2555
Fort Collins, CO	(970) 491-6151
Wethersfield, CT	(860) 566-4550
Washington, DC	(202) 541-3727
Wilmington, DE	(302) 761-8219

Tampa, FL	(813) 974-9962
Atlanta, GA	(404) 894-2643
Tiyam, GU	9-1-(671) 475-1101
Honolulu, HI	(808) 586-9100
Des Moines, IA	(515) 281-7629
Boise, ID	(208) 426-3283
Chicago, IL	(312) 814-2337
Indianapolis, IN	(317) 232-2688
Topeka, KS	(785) 296-7476
Frankfort, KY	(502) 564-6895
Baton Rouge, LA	(225) 342-9601
West Newton, MA	(617) 727-3982
Laurel, MD	(410) 880-4970
Augusta, ME	(207) 624-6460
Lansing, MI	(517) 322-1809
Saint Paul, MN	(651) 297-2393
Jefferson City, MO	(573) 751-3403
Jackson, MS	(601) 987-3981
Helena, MT	(406) 444-6418
Raleigh, NC	(919) 807-2905
Bismarck, ND	(701) 328-5188
Lincoln, NE	(402) 471-4717
Concord, NH	(603) 271-2024
Trenton, NJ	(609) 292-3923
Santa Fe, NM	(505) 827-4230
Albany, NY	(518) 457-2238
Henderson, NV	(702) 486-9140
Columbus, OH	(614) 644-2631
Oklahoma City, OK	(405) 528-1500
Salem, OR	(503) 378-3272
Indiana, PA	(724) 357-2396
Hato Rey, PR	(787) 754-2171
Providence, RI	(401) 222-2438
Columbia, SC	(803) 734-9614
Brookings, SD	(605) 688-4101
Nashville, TN	(615) 741-7036
Austin, TX	(512) 804-4640
Salt Lake City, UT	(801) 530-6901
Montepilier, VT	(802) 828-2765
Richmond, VA	(804) 786-6359
Christiansted St. Croix, VI	(809) 772-1315
Olympia, WA	(360) 902-5638
Madison, WI	(608) 266-9383
Waukesha, WI	(262) 523-3044
Charleston, WV	(304) 558-7890
Cheyenne, WY	(307) 777-7786

OSHA FACT Sheet

Fire Safety in the Workplace

What should employers do to protect workers from fire hazards?

Employers should train workers about fire hazards in the workplace and about what to do in a fire emergency. If you want your workers to evacuate, you should train them on how to escape. If you expect your workers to use firefighting equipment, you should give them appropriate equipment and train them to use the equipment safely. (See Title 29 of the *Code of Federal Regulations* Part 1910 Subparts E and L; and Part 1926 Subparts C and F.)

What does OSHA require for emergency fire exits?

Every workplace must have enough exits suitably located to enable everyone to get out of the facility quickly. Considerations include the type of structure, the number of persons exposed, the fire protection available, the type of industry involved, and the height and type of construction of the building or structure. In addition, fire doors must not be blocked or locked when employees are inside. Delayed opening of fire doors, however, is permitted when an approved alarm system is integrated into the fire door design. Exit routes from buildings must be free of obstructions and properly marked with exit signs. See 29 *CFR* Part 1910.36 for details about all requirements.

Do employers have to provide portable fire extinguishers?

No. But if you do, you must establish an educational program to familiarize your workers with the *general principles* of fire extinguisher use. If you expect your workers to use portable fire extinguishers, you must provide *hands-on training* in using this equipment. For details, see 29 *CFR* Part 1910 Subpart L.

Must employers develop emergency action plans?

Not every employer is required to have an emergency action plan. OSHA standards that require such plans include the following:

- Process Safety Management of Highly Hazardous Chemicals, 1910.119
- Fixed Extinguishing Systems, General, 1910.160
- Fire Detection Systems, 1910.164
- Grain Handling, 1910.272
- Ethylene Oxide, 1910.1047
- Methylenedianiline, 1910.1050
- 1,3 Butadiene, 1910.1051

When required, employers must develop emergency action plans that:

- Describe the routes for workers to use and procedures to follow.
- Account for all evacuated employees.
- Remain available for employee review.
- Include procedures for evacuating disabled employees.
- Address evacuation of employees who stay behind to shut down critical plant equipment.
- Include preferred means of alerting employees to a fire emergency.
- Provide for an employee alarm system throughout the workplace.
- Require an alarm system that includes voice communication or sound signals such as bells, whistles, or horns.
- Make the evacuation signal known to employees.
- Ensure emergency training.
- Require employer review of the plan with new employees and with all employees whenever the plan is changed.

Must employers have a fire prevention plan?

OSHA standards that require fire prevention plans include the following:

- Ethylene Oxide, 1910.1047
- Methylenedianiline, 1910.1050
- 1,3 Butadiene, 1910.1051

Employers covered by these standards must implement plans to minimize the frequency of evacuations. All fire prevention plans must:

- Be available for employee review.

- Include housekeeping procedures for storage and cleanup of flammable materials and flammable waste.
- Address handling and packaging of flammable waste. (Recycling of flammable waste such as paper is encouraged.)
- Cover procedures for controlling workplace ignition sources such as smoking, welding, and burning.
- Provide for proper cleaning and maintenance of heat producing equipment such as burners, heat exchangers, boilers, ovens, stoves, and fryers and require storage of flammables away from this equipment.
- Inform workers of the potential fire hazards of their jobs and plan procedures.
- Require plan review with all new employees and with all employees whenever the plan is changed.

What are the rules for fixed extinguishing systems?

Fixed extinguishing systems throughout the workplace are among the most reliable fire fighting tools. These systems detect fires, sound an alarm, and send water to the fire and heat. To meet OSHA standards employers who have these systems must:

- Substitute (temporarily) a fire watch of trained employees to respond to fire emergencies when a fire suppression system is out of service.
- Ensure that the watch is included in the fire prevention plan and the emergency action plan.
- Post signs for systems that use agents (e.g., carbon dioxide, Halon 1211, etc.) posing a serious health hazard.

How can you get more information on safety and health?

OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through workplace consultation, voluntary protection programs, strategic partnerships, alliances, state plans, grants, training, and education. OSHA's *Safety and Health Program Management Guidelines* (*Federal Register* 54:3904–3916, January 26, 1989) detail elements critical to the development of a successful safety and health management system. This and other information are available on OSHA's website.

- For one free copy of OSHA publications, send a self-addressed mailing label to OSHA Publications Office, 200 Constitution Avenue, N.W., N-3101, Washington, DC 20210; or send a request to our fax at (202) 693–2498, or call us at (202) 693–1888.
- To order OSHA publications online at **www.osha.gov**, go to **Publications** and follow the instructions for ordering.
- To file a complaint by phone, report an emergency, or get OSHA advice, assistance, or products, contact your nearest OSHA office under the U.S. Department of Labor listing in your phone book, or call toll-free at **(800) 321–OSHA (6742)**. The teletypewriter (TTY) number is (877) 889–5627.
- To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website.

This is one in a series of informational fact sheets highlighting OSHA programs, policies, or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to *Title 29 of the Code of Federal Regulations*. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693–1999. See also OSHA's website at **www.osha.gov**.

OSHA
Occupational Safety and Health Administration
U.S. Department of Labor
2002

FIRE EXTINGUISHER GUIDELINES

Introduction

Used properly, a portable fire extinguisher can save lives and property by putting out a small, contained fire or containing it sufficiently to allow escape. Fire extinguishers are considered first aid equipment for controlling and putting out small fires before they become large ones. However, they are no substitute for the fire department. Having the proper fire extinguisher, as well as knowing how to use it and how not to use it is important in safeguarding employees in the workplace.

The first rule of firefighting is to save lives first, and property second. Get yourself and your fellow employees to safety before attempting to extinguish any fire. Only if you can do so without endangering yourself or others should you use firefighting aids on hand. Remember, objects can be replaced, people can't. Never re-enter a burning building. Get out and stay out.

Selecting the proper fire extinguisher for your workplace is as simple as A, B, C. There are three basic classes of fires. Portable fire extinguishers that have been tested and approved will be labeled with the class or classes of fire they are suited to fight. There are two standard labeling systems as outlined below.

Extinguisher Labels

The older labeling system uses simple icons with an A, B or C designation to show which class or classes of fire it is safe to use a given extinguisher to fight.

The newer labeling system uses standard pictorial symbols which show the class or classes of fire for which the extinguisher is suited. The symbols identify the type of fire the extinguisher can be used for.

Note: A red slash stroked through any of the fire classification symbols means it is unsafe to use that extinguisher on that class of fire. For example, a water-filled extinguisher would show the symbols for Class B and C fires slashed through, as water should never be used to extinguish a flammable liquid or an electrical fire.

If a symbol is not shown on the extinguisher's label, it simply means the extinguisher was not tested for that class of fire.

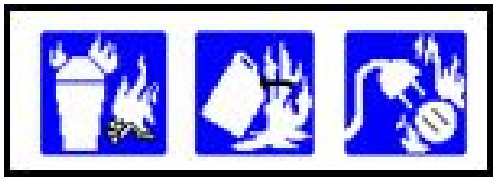
Fire Extinguisher Ratings

Old Icon Label | New Label	Classification
	**Class A Extinguishers** will put out fires in ordinary combustibles, such as wood and paper. The numerical rating for this class of fire extinguisher refers to the amount of water or dry chemical the fire extinguisher holds and the amount of fire it will extinguish.
	**Class B Extinguishers** should be used on fires involving flammable liquids, such as kitchen grease, gasoline, kerosene, paint, oil, etc. The numerical rating for this class of fire extinguisher states the approximate number of square feet of a flammable liquid fire that a non-expert person can expect to extinguish. NEVER USE WATER
	**Class C Extinguishers** are suitable for use on fires involving electrical equipment or wires. This class of fire extinguishers does not have a numerical rating. The presence of the letter "C" indicates that the extinguishing agent is non-conductive. NEVER USE WATER

Multi-Class Rating Extinguishers available today can be used on different types of fires and will be labelled with more than one designator, e.g. A-B, B-C, or A-B-C. Make sure that if you have a multi-purpose extinguisher it is properly labeled.

Types of Fire Extinguishers

Multi-purpose – Dry Chemical: These extinguishers are usually rated for multiple-purpose use. They contain an extinguishing agent and use a compressed, non-flammable gas as a propellant. Dry chemical extinguishers are usually rated for class B and C fires and may be marked multiple purpose for use in A, B, and C fires.



Dry chemical extinguishers put out fires by coating the fuel with a thin layer of fire retardant powder, separating the fuel from the oxygen. The fire retardant powder works by suffocating the fire, inhibiting the release of combustible vapours and interrupting the combustion chain reaction, which makes these extinguishers extremely effective.

ABC fire extinguishers are red in colour, and range in size from 2.27 kg to 9 kg (5 to 20 pounds).

Dry Chemical extinguishers will have a label indicating they may be used on class A, B, and/or C fires.

Water – Air-pressurized Water (APW): These extinguishers contain water and compressed air and should only be used on Class A (ordinary combustibles) fires.

Water is one of the most commonly used extinguishing agents for type A fires. You can recognize an APW by its large silver container. They are filled about two-thirds of the way with ordinary water, then pressurized with air. In some cases, detergents are added to the water to produce a foam. They stand about .6 to 1

metre tall (2 to3 feet) and weigh approximately 11.5 kg (25 pounds) when full.

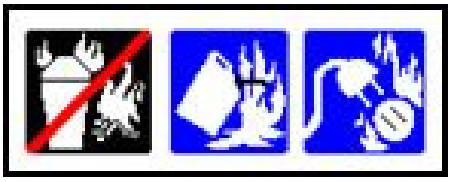
APWs extinguish fire by cooling the surface of the fuel to remove the "heat" element of the fire triangle.

APWs are designed for Class A (wood, paper, cloth, upholstery, rubber, and certain plastics) fires only.

Important:

- Never use water to extinguish flammable liquid fires (Class B). Water is extremely ineffective at extinguishing this type of fire and will make matters worse by the spreading the fire.
- Never use water to extinguish an electrical fire (Class C). Water is a good conductor and may lead to electrocution if used to extinguish an electrical fire. Electrical equipment must be unplugged and/or de-energized before using a water extinguisher on an electrical fire.

Carbon Dioxide (CO2): These extinguishers are most effective on Class B and C (liquids and electrical) fires. This type of extinguisher is filled with Carbon Dioxide (CO_2) gas, a non-flammable gas under extreme pressure. These extinguishers put out fires by displacing oxygen, or taking away the oxygen element of the fire triangle. Because of its high pressure, when you use this extinguisher pieces of dry ice shoot from the horn, which also has a cooling effect on the fire.



Since the gas disperses quickly, these extinguishers are only effective from 1 to 2-1/2 metres (3 to 8 feet). Since the fire could re-ignite, continue to apply the agent even after the fire appears to be out.

You can recognize this type of extinguisher by its hard horn and lack of pressure gauge. CO_2 cylinders are red and range in size from 2.27 kg to 45.36 kg (5 to 100 pounds) or larger.

CO_2 extinguishers are designed for Class B and C (flammable liquid and electrical) fires only.

Important:

- CO_2 is not recommended for Class A fires because they may continue to smoulder and re-ignite after the CO_2 dissipates.
- Never use CO_2 extinguishers in a confined space while people are present without proper respiratory protection.

Choosing a Fire Extinguisher

Before you invest in one or more fire extinguishers, consider where you need them. Where are fires most likely to start? What type of fire would be most likely? Not all fire extinguishers work on all types of fires. Make sure you select an extinguisher that can be easily handled by all applicable employees. Remember, the size of the extinguisher is directly related to the size of fire that you can extinguish. Purchase extinguishers listed by a nationally accepted testing laboratory, such as Underwriters Laboratories of Canada (ULC).

Location of Fire Extinguishers

Fire extinguishers should be installed where the potential fire risk is greatest in the workplace. A Multi-purpose Dry Chemical fire extinguisher should be considered for most applications. Extinguishers should never be more than 23 metres (75 feet) away from a Class A (ordinary combustibles) hazard, or further than 15 metres (50 feet) away from a Class B (flammable liquids) hazard.

Keep extinguishers in a visible location, high on a wall, near an exit, and away from heat sources. If exposed to heat, the fire extinguisher's contents may become less effective or cause the extinguisher to lose its charge more quickly. The best location in most situations is just inside a door or entrance. Avoid locating an extinguisher right next to where a fire could develop. Smoke, heat or flames from a fire may prevent you from reaching the extinguisher.

Fire Extinguisher Maintenance

Follow the manufacturer's instructions for care and maintenance. Rechargeable models must be serviced and recharged after every use. A partially discharged fire extinguisher is always considered an empty one. Have it refilled or replaced immediately. Disposable fire extinguishers can only be used once and must be replaced after use. Most fire equipment service companies will

not recharge a fire extinguisher with a plastic head assembly, since they find they aren't reliable in holding a charge. Recommended monthly maintenance checks are provided below.

Monthly Maintenance Checks:

- Check to ensure that nothing is blocking immediate access to your fire extinguisher. Remove any obstructions.
- Check to ensure your extinguisher is at the recommended operating pressure, indicated by the needle in the green zone on extinguishers equipped with a gauge. Have the extinguisher recharged if the needle is not in the green zone of the gauge.
- Check the hose or nozzle for cracks, tears or blockage by debris. If damage is found, have the extinguisher repaired by a qualified service technician or replaced.
- Check the pin and tamper seal to ensure they are intact. If the tamper seal is broken or the pin is missing, have the extinguisher serviced by a qualified service technician.
- Check to ensure the handle or lever is undamaged. If the handle or lever is wobbly or broken, have the extinguisher inspected and repaired by a qualified service technician.
- Check the extinguisher for dents, leaks, rust, chemical deposits and/or other signs of abuse or wear. If damage is found, have the extinguisher repaired by a qualified service technician or replaced.
- Remove the extinguisher from its mounting bracket, turn the extinguisher upside down and hit the bottom sharply with your hand, then shake it well. This will prevent the dry chemical powder from settling or packing down in the cylinder, making it ineffective.
- Note the date of the monthly inspection on the inspection tag attached to your fire extinguisher.

When to Replace a Fire Extinguisher

Most fire extinguishers have a lifespan of 5 to 15 years, if properly handled and maintained. Check the label on the fire extinguisher for the location of the date of manufacture. Most newer extinguishers have the year of manufacture stamped on the bottom of the cylinder. Disposable fire extinguishers can be used only once and must be replaced after use. Rechargeable Dry Chemical fire extinguishers must be hydrostatically tested and recharged by a qualified service technician every six years. -

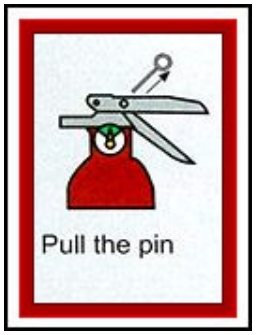
If You Discover a Fire – remember the acronym RACE!

- **Rescue** anyone in immediate danger of the fire, if you can do so safely.
- **Alert** others and emergency services to the fire. Activate the building's fire alarm, if equipped. Yell "Fire" to warn occupants to evacuate. Call 911 to alert the fire department; always call from a safe location away from the fire.
- **Contain** the spread of fire by closing windows and doors as you evacuate the area and building.

- **Evacuate** to a safe place outside; preferably a pre-arranged meeting place.

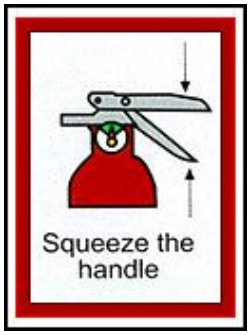
Using Your Portable Fire Extinguisher

It's easy to remember how to use a fire extinguisher if you can remember the acronym **PASS**, which stands for Pull, Aim, Squeeze, and Sweep. Most portable fire extinguishers work according to these directions, but some do not. Read and follow the directions on your extinguisher.



Pull the pin. Some models require you to remove a locking pin on the handle or lever. Some models may have other lever-releasing mechanisms, such as a button.

Aim low and direct the hose nozzle or cone at the base of the fire. If you aim at the flames, which most inexperienced users are tempted to do, the extinguishing agent will flow right through the flames, and be ineffective. You want the extinguishing agent to hit the base of the fire. Follow the manufacturer's instructions on the safe distance from which to fight the fire. Most portable fire extinguishers must be used from a distance of 1.8 to 3 metres (6 to 10 feet) to be effective.



Squeeze the lever above the handle to discharge the extinguishing agent. Releasing the lever will stop the discharge. Some models may have a button instead of a lever.

Sweep the nozzle or hose from side to side at the base of the fire. Moving carefully toward the fire, keep the extinguisher aimed at the base of the fire and sweep back and forth until the flames appear to be out. Never turn your back on a fire; watch the fire area in case the fire re-ignites, and repeat use of the extinguisher if necessary.

Always have the fire department inspect the fire site, even if you're sure you've extinguished the fire. The fire department will check to ensure there has not been any spread of fire beyond the original ignition site.

Before Fighting a Small Fire:

Don't attempt to fight a small, contained fire unless you:

- Evacuate all people from the area of the fire.
- Ensure that someone has called 911 to alert the fire department. An extinguisher is no substitute for the fire department.
- The fire is small and not spreading.
- Ensure you can get out fast if you can't control the fire. Don't get trapped. Make sure the fire is not between you and your escape. Always keep an exit at your back!
- Ensure you have the right extinguisher for the type and size of fire.
- Ensure your extinguisher is fully charged and in proper working order (monthly inspections).
- Know how to use your fire extinguisher. It's too late to read the instructions when the fire is burning. If you are unsure on how to use your fire extinguisher or do not feel confident in using it, evacuate immediately, closing doors and windows as you exit.
- Never endanger yourself or others in trying to extinguish a fire.
- If you try to use a fire extinguisher on a fire and the fires does not immediately die down, or if the smoke becomes a major problem, drop the extinguisher and leave the area, closing the door to the area behind you to confine the fire. "Immediately" means within 8 or 10 seconds, the time it takes for most home fire extinguishers to empty.

Never Fight a Fire If:

Fires can be extremely dangerous and you should always be certain that you would not endanger yourself or others when attempting to put out a fire. Never fight a fire if:

- You don't know what's burning. If you don't know what is burning you don't know what type of extinguisher to use. Even if you have a multi-purpose ABC fire extinguisher, there may be something in the fire that could explode or produce highly toxic smoke. If you don't know what is burning, let the fire department handle it.
- The fire appears to be too large to handle with one extinguisher. If you've emptied the extinguisher on the fire and the fire continues – evacuate immediately. Do not look for another extinguisher! Evacuate the building immediately, closing doors and windows behind you to reduce the spread of fire.
- The fire is spreading rapidly beyond the spot where it started. The time to use an extinguisher is in the beginning stages of a fire. Fire doubles in size every minute and can spread rapidly.

If the fire is already spreading quickly, it is best to evacuate the building immediately, closing doors and windows behind you to reduce the spread of fire.

- You don't have an adequate or appropriate fire extinguisher. If you don't have the correct type or large enough extinguisher to put out the fire, it is best not to try to fight the fire. Evacuate the building immediately, closing doors and windows behind you to reduce the spread of fire.
- You might inhale toxic smoke. Any type of fire will produce some amount of carbon monoxide. When synthetic materials, such as nylon in carpeting or foam padding in a couch burn, they can produce highly toxic gases such as hydrogen cyanide, acrolein and ammonia, in addition to carbon monoxide. These gases can be fatal in very small amounts.
- Your instincts tell you not to. If you are uncomfortable with the situation, for any reason, or do not feel confident in using the fire extinguisher properly and safely, do not attempt to fight the fire. Call the fire department and let the professionals handle the emergency.

OSHA FactSheet

Hazardous Waste Operations and Emergency Response

OSHA's standards for general industry and the construction industry on hazardous waste operations and emergency response (29 CFR 1910.120 or 29 CFR 1926.65) cover all employees involved in:

- Clean-up operations of hazardous substances at uncontrolled hazardous waste sites required by Federal, state, local or other governments;
- Corrective actions involving clean-up procedures at sites covered by the Resource Conservation and Recovery Act (RCRA);
- Voluntary clean-up operations at sites recognized as uncontrolled hazardous waste sites by Federal, state, local or other governments;
- Operations involving hazardous waste that are conducted at treatment, storage and disposal facilities licensed under RCRA;
- Emergency response operations for hazardous substance releases or substantial threats of releases.

Exceptions are permitted if the employer can demonstrate that the operation does not involve employee exposure or a reasonable possibility of such exposure to hazards.

State and local government employees are covered by equivalent standards in the 26 states with OSHA-approved state plans and by the Environment Protection Agency's hazardous waste standard in states without plans.

Hazardous Waste Operations

Each employer must have:

- A written, readily-accessible safety and health program that identifies, evaluates and controls safety and health hazards and provides for emergency response.
- A preliminary site evaluation conducted by a qualified person to identify potential site hazards and to aid in the selection of appropriate employee protection methods.
- A site control program to protect employees against hazardous contamination. At a minimum it must have a site map, site work zones, site communications, safe work practices, the use of a "buddy system," and identification of the nearest medical aid.
- Employee training for everyone working on a hazardous waste site.
- Medical surveillance of workers exposed at or above permissible exposure limits for hazardous substances, conducted (1) at least annually, (2) when a worker moves to a new worksite, (3) when a worker experiences exposure from unexpected or emergency releases and (4) at the end of employment.

Other requirements include controls to reduce and monitor exposure levels of hazardous materials, an informational program describing any exposure during operations and the inspection of drums and containers prior to removal or opening. Decontamination procedures and emergency response plans (described under Emergency Response) must be in place before employees begin working in hazardous waste operations. Employers must also create safer environments by developing and implementing effective new technologies.

RCRA Sites

In addition to programs for safety and health, training, medical surveillance, decontamination, new technology and emergency response, employers at RCRA sites also need the following:

- A written hazard communication program meeting the requirements of 29 CFR 1910.1200.
- Procedures to effectively control and handle drums and containers.

Emergency Response

Employers must develop an emergency response plan to handle possible on-site emergencies and coordinate off-site response. Rehearsed regularly and reviewed/amended periodically, the plan must address: personnel roles; lines of authority, training and communications; emergency recognition and prevention; site security; evacuation

routes and procedures; decontamination procedures; emergency medical treatment; and emergency alerting procedures. Training is required before employees engage in hazardous waste operations and emergency response.

Training Requirements

Uncontrolled hazardous waste operations

- 40 hours of initial training; 3 days of actual field experience for regular employees to be certified.
- 24 hours of initial training; 1 day of supervised field experience for employees visiting the site occasionally.
- 8 hours of additional waste management training for supervisors and managers.
- 8 hours of annual refresher training.

Treatment, storage and disposal facilities licensed under RCRA

- 24 hours of training.
- 8 hours of annual refresher training.

Emergency response operations at sites not RCRA licensed or at uncontrolled hazardous waste site clean-ups

1) **First responders at the "awareness level"** (witness or discover a hazardous substance release and initiate the emergency response) must demonstrate competency in areas such as recognizing the presence of hazardous materials in an emergency, the risks involved and the role they play in their employer's plan.

2) **First responders at the "operations level"** (respond to prevent the spread, exposures to and the further release of hazardous materials) must have **8 hours** of training plus "awareness level" competency.

3) **Hazardous materials technicians** (respond to stop the release) must have **24 hours** of training equal to the "operations level" and know how to implement the employer's plan and carry out decontamination.

4) **Hazardous materials specialists** (require specific knowledge of the substances to be contained) must have **24 hours** of training equal to the "technical level" and act as liaison with all government authorities.

5) **On-scene incident commanders** (assume control of the scene) must have **24 hours** of training equal to the "operations level" and demonstrate competence in implementing the incident command system, the employer's plan and the state and local emergency response plans.

Annual refresher training is required for each level of response.

For further information about hazardous waste operations and emergency response, please visit OSHA's Hazardous Waste page at www.osha.gov.

Think Safety!

For more complete information:

OSHA Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

(800) 321-OSHA

OSHA® Occupational Safety and Health Administration

www.osha.gov

Hazardous Waste Operations and Emergency Response

OSHA 3114-07R 2008

Employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This informational booklet provides a general overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts for additional guidance on OSHA compliance requirements.

This information is available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

Edwin G. Foulke, Jr.
Assistant Secretary of Labor for
Occupational Safety and Health

Hazardous Waste Operations and Emergency Response

U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3114-07R
2008

Contents

This guidance document is not a standard or regulation, and it creates no new legal obligations. The document is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthy workplace. The *Occupational Safety and Health Act* requires employers to comply with hazard-specific safety and health standards promulgated by OSHA or by a State with an OSHA-approved State Plan. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement these recommendations is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause.

ACRONYMS

BBP	Bloodborne Pathogens
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CESQGs	Conditionally Exempt Small Quantity Generators
CFR	Code of Federal Regulations
DHS	Department of Homeland Security
DOT	Department of Transportation
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
HASP	Health and Safety Plan
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCS	Hazard Communication Standard
ICS	Incident Command System
IDLH	Immediately Dangerous to Life or Health
MSDS	Material Safety Data Sheet
NIMS	National Incident Management System
NPL	National Priority List
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act of 1976
SARA	Superfund Amendments and Reauthorization Act of 1986
SCBA	Self-contained breathing apparatus
SHARP	Safety and Health Achievement Recognition Program
SSP	Skilled Support Personnel
TSD	Treatment, Storage, and Disposal
TRI	Toxic Release Inventory
UST	Underground storage tank
VPP	Voluntary Protection Programs

Introduction

The dumping of hazardous substances poses a significant threat to the environment. The U.S. Environmental Protection Agency's (EPA) Toxic Release Inventory (TRI) data show that over 18 million tons of hazardous substances covered by TRI were disposed of or released into the environment from 1998 through 2004.[1] Hazardous substances are a serious safety and health problem that continues to endanger human and animal life and environmental quality. Discarded hazardous substances that are toxic, flammable, or corrosive can cause fires, explosions, and pollution of air, water, and land. Unless hazardous substances are properly treated, stored, or disposed of, they will continue to do great harm to living things that contact them, now and in the future.

Because of the seriousness of the safety and health hazards related to hazardous waste operations and emergency response, the Occupational Safety and Health Administration (OSHA) issued its Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, Title 29 *Code of Federal Regulations* (CFR) Parts 1910.120 and 1926.65 (*see* 54 *Federal Register* 9294-9336, March 6, 1989) to protect employees in this environment and to help them handle hazardous substances safely and effectively.

The HAZWOPER standard for the construction industry, 29 CFR 1926.65, is identical to 29 CFR 1910.120. For brevity, the HAZWOPER standard is referenced as 1910.120 throughout the remainder of this publication.

The HAZWOPER standard covers all employers performing the following three general categories of work operations:

- Hazardous waste site cleanup operations [paragraphs (b)-(o)] (e.g., SUPERFUND cleanup),
- Operations involving hazardous waste that are conducted at treatment, storage, and disposal (TSD) facilities [paragraph (p)] (e.g., landfill that accepts hazardous waste), and

[1] U.S. Environmental Protection Agency, TRI 2004 Public Data Release (http://www.epa.gov/tri/tridata/index.htm).

- Emergency response operations involving hazardous substance releases [paragraph (q)] (e.g., chemical spill at a manufacturing plant).

An understanding of how each of these sections are different from each other and what they apply to is essential to ensure compliance with the appropriate section of HAZWOPER. The scope and application [paragraphs (a)(1) and (a)(2)] sections of the standard define these work operations and indicate what sections of the standard they fall under.

State, county, and municipal employees, including hazardous waste treatment, storage and disposal facility employees, and first responders, such as fire and rescue personnel, police, and medical personnel, are covered by HAZWOPER and other regulations issued by the 26 states and territories operating their own OSHA-approved safety and health programs (see listing at the end of this booklet or visit OSHA's website at www.osha.gov). EPA HAZWOPER regulations cover these employees in states without OSHA-approved state plans. The EPA adopted the HAZWOPER standard at 40 CFR Part 311 for public employees (either compensated or non-compensated) who perform operations within the scope of the standard in states that do not have an OSHA-approved state plan.

This booklet provides an overview of the HAZWOPER requirements for each type of work operation and explains each section separately to provide a clearer understanding of the standard. Having this understanding enables employers to protect the health and safety of their employees in these different environments.

Scope and Application

As briefly discussed in the introduction, HAZWOPER covers three categories of work operations. First, paragraphs (b)-(o) of the standard regulate those operations where employees are engaged in the cleanup of uncontrolled hazardous waste sites. These operations include those hazardous substance operations under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* as amended (CERCLA), including initial investigations at CERCLA sites before the presence or absence of hazardous substances has

been determined. Examples of types of uncontrolled hazardous waste sites that would be covered by HAZWOPER include those:

- Listed or proposed for listing on the National Priority List (NPL),
- Listed or proposed for listing on a State priority list,
- Identified or listed by a governmental agency as an uncontrolled hazardous waste site (Note: this includes voluntary cleanup operations), and
- Regulated as a corrective action covered by the *Resource Conservation and Recovery Act* (RCRA).

The second category of work operation is covered by paragraph (p) and includes those employees engaged in operations involving hazardous waste TSD facilities regulated under 40 CFR Parts 264 and 265 pursuant to the RCRA. There are certain types of employers who are exempted from paragraph (p) and these are addressed in the section covering provisions for TSD facilities.

The third and final work operation category is covered by paragraph (q) and includes those employees engaged in emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard. Paragraph (q) also includes provisions for post-emergency response operations, such as performing any necessary cleanup activity. Table 1 provides a summary of the scope and application of the standard, including some example work activities.

Table 1 – Scope and Application of HAZWOPER		
Work Operation	**HAZWOPER (Applicable Paragraphs)**	**Examples of Work Activities**
Cleanup Operations – Cleanup operations required by a governmental body or other operations involving hazardous substances that are conducted at uncontrolled hazardous waste sites. – Corrective actions involving cleanup operations at sites covered by RCRA. – Voluntary cleanup operations at sites recognized by federal, state, local, or other governmental bodies as uncontrolled hazardous waste sites.	1910.120(b)-(o)	• Site Characterization of Hazardous Waste Site • Drum Removal • Contaminated Soil Removal • Underground Storage Tank (UST) Removal
Operations at TSD Facilities Operations involving hazardous waste conducted at TSD facilities regulated by 40 CFR 264 and 265 pursuant to RCRA or by agencies under agreement with the EPA to implement RCRA regulations.	1910.120(p)	• Treating Waste for Disposal at RCRA Landfill • Handling Waste at RCRA Landfill
Emergency Response Operations Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazards.	1910.120(q)	• Response to the spill of a highly toxic substance from overturned 55-gallon drum • Response to leaking storage tank • Response to overturned truck carrying hazardous materials • Response to chemical fire

Provisions of HAZWOPER for Cleanup Operations

Safety and Health Program

An effective and comprehensive safety and health program is essential in reducing work-related injuries and illnesses and in maintaining a safe and healthful work environment. The standard, therefore, requires each employer to develop and implement a written safety and health program that identifies, evaluates, and controls safety and health hazards, and provides emergency response procedures for each hazardous waste site. This written program must include specific and detailed information on the following topics:

- An organizational structure,
- A comprehensive workplan,
- A site-specific safety and health plan (often referred to as a health and safety plan or HASP),
- A safety and health training program,
- A medical surveillance program, and
- Standard operating procedures.

The written safety and health program must be periodically updated and made available to all affected employees, contractors, and subcontractors. Necessary coordination between the general program and site-specific activities also should be included in the program. The employer also must inform contractors and subcontractors, or their representatives, of any identifiable safety and health hazards or potential fire or explosion hazards before they enter the worksite.

Organizational Structure

The organizational structure part of the program establishes the overall chain of command as well as the roles and responsibilities assigned to supervisors and employees. The organizational structure must, at a minimum, include the following elements:

- A general supervisor with the responsibility and authority to direct all hazardous waste site operations,

- A site safety and health supervisor who develops and implements the HASP and is responsible for ensuring compliance, and
- The roles and responsibilities of all the other site personnel necessary for hazardous waste site operations.

Comprehensive Workplan

Planning is the key element in a hazardous waste cleanup program. Proper planning will greatly reduce employee hazards at hazardous waste sites. A workplan should support the overall objectives of the cleanup program and provide procedures for implementation, and incorporate the employer's standard operating procedures for safety and health.

The plan must define the tasks and objectives of site operations as well as the logistics and resources required to fulfill these tasks. For example, the following topics must be addressed:

- The anticipated cleanup and operating procedures,
- A definition of work tasks and objectives, and methods of accomplishment,
- The established personnel requirements for implementing the plan, and
- Procedures for implementing training, informational programs, and medical surveillance requirements.

Site Characterization and Analysis

Site characterization and analysis is the process of identifying specific site hazards and determining the appropriate safety and health control procedures necessary to protect site employees. The more accurate, detailed, and comprehensive the information available about a site, the more the protective measures can be tailored to the actual hazards that the employees may encounter. At each phase of site characterization, information is obtained and evaluated to define the potential hazards of the site. Much of the information obtained from the initial site characterization is used in the development of the site health and safety plan (HASP) required in 1910.120(b)(4). (Note: the site HASP is addressed further in the next section.)

A preliminary evaluation of the site's characteristics must be performed prior to site entry. A secondary more detailed evaluation must be conducted to further identify existing hazards to aid in the selection of appropriate engineering controls and personal protective equipment (PPE) for future site activities. The evaluation must include all suspected conditions that are immediately dangerous to life or health (IDLH) or that may cause serious harm to employees (e.g., confined space entry, potentially explosive or flammable situations, visible vapor clouds, etc.). As available, the evaluation must include the location and size of the site, site topography, site accessibility by air and roads, pathways for hazardous substances to disperse, a description of employee duties, and the time needed to perform a given task, as well as the present status and capabilities of the emergency response teams.

Additional requirements of the site characterization involve the following:

- PPE to be used during initial site entry,
- Exposure monitoring for ionizing radiation and other IDLH conditions. (Note: An ongoing air monitoring program in accordance with paragraph (h) of HAZWOPER must be implemented after site characterization has determined that it is safe to begin start-up or cleanup operations), and
- Risk identification based on the presence and concentrations of hazardous substances and communication of the risks to those employees who will be working on the site.

Health and Safety Plan (HASP)

A HASP is a critical program element that aids in eliminating or effectively controlling anticipated safety and health hazards. The HASP must be unique to the site and address all of the elements under paragraph (b)(4)(ii), including:

- Hazard analysis for each site task,
- Employee training,
- Personal protective equipment (PPE) to be used by employees and based on hazard analysis,
- Medical surveillance,

- Exposure monitoring,
- Site control measures,
- Decontamination procedures,
- Emergency response plan,
- Confined space entry procedures, and
- Spill containment.

Although some of the above elements are a part of the overall safety and health program, several others are additional to these elements and are crucial in developing an effective HASP. For example, the task hazard analysis may be the most critical component of the site HASP and addresses the chemical, physical, and biological hazards associated with each particular task or operation and the control procedures that protect employees when they perform that task. Information obtained from the hazard analysis provides the basis for making important decisions regarding the selection of PPE, medical monitoring, exposure monitoring, etc.

It is important to thoroughly address in the HASP how exposure monitoring will be performed as this is necessary for the protection of site employees. Critical information includes the frequency and types of air monitoring, personnel monitoring, environmental sampling techniques and instrumentation including calibration and maintenance methods, as well as the interpretation of monitoring results. For example, there should be established criteria for determining when to upgrade or downgrade PPE based on exposure monitoring results.

Another important element of the HASP is site control, which involves controlling the activities of employees and the movement of equipment which minimizes potential contamination of employees. Site control also protects the general public from site hazards and can prevent trespassing and vandalism. The following information is useful in developing and implementing a site control program: a site map; site work zones; site communication; safe work practices; and the name, location, and phone number of the nearest medical assistance.

The use of a "buddy system" is also required as a protective measure to assist in the rescue of an employee who becomes unconscious, trapped, or seriously disabled on site. In the buddy

system, two employees must keep in visual contact with each other and only one employee should be in a specific dangerous area at any one time, so that if one gets in trouble the second can call for help.

The written HASP must be kept at the site and must always be available for employee, contractor, or subcontractor review. Pre-entry briefings must be conducted prior to site entry and at other times as necessary to ensure that employees are aware of the HASP and its implementation. The employer also must ensure that periodic safety and health inspections are made of the site and that all known deficiencies are corrected prior to work at the site.

OSHA has developed an interactive software program (e-HASP2) that assists employers in developing an appropriate HASP. This eTool integrates decision logic and a large chemical database to assist the user in determining appropriate controls for site health and safety hazards. After site-specific information has been entered, the program generates reports with "model" language that is acceptable to OSHA in preparing a site-specific HASP. This eTool can be found on OSHA's Hazardous Waste web page.

Safety and Health Training Program

A training program is required under the safety and health program and is also part of the site HASP. This training must be provided to all employees who will work on the site such as equipment operators, general laborers, and supervisors or managers who may have exposure to hazardous substances.

Before performing any work on a hazardous waste site, the employer must provide its employees with initial training based on the tasks and operations that employees will perform and the exposures they are anticipated to experience (see Table 2). Employees who have "equivalent" experience and skills from previous work experience and/or training would not have to receive the initial training provided that the employer can verify it through documentation or certification. Equivalently trained employees who are new to a site must still receive site-specific training before site entry.

Training makes employees aware of the potential hazards they may encounter and provides the necessary knowledge and skills to perform their work with minimal risk to their own, and other employees', safety and health. Both supervisors and employees

must be trained to recognize hazards and to prevent them; to select, care for, and use respirators properly, as well as other types of PPE; to understand engineering controls and their use; to use proper decontamination procedures; to understand the emergency response plan, medical surveillance requirements, confined space entry procedures, spill containment program, and any appropriate work practices. Employees also must know the names of personnel and their alternates responsible for site safety and health. Site personnel who are expected to respond to emergency situations at the site must receive additional training in how to respond to anticipated emergencies (e.g., fires/explosions, hazardous spills, etc.).

Table 2 – Training Requirements – Hazardous Waste Cleanup Operations

Workers [1910.120(e)(3)]	
• General site employees (e.g., equipment operators, general laborers, etc.) [1910.120(e)(3)(i)]	40 hours initial training 24 hours supervised field experience 8 hours annual refresher
• Employees occasionally on site for a limited task (e.g., groundwater monitoring, land surveying, etc.) with minimal exposure [1910.120(e)(3)(ii)]	24 hours initial training 8 hours supervised field experience 8 hours annual refresher
• Employees regularly on site who are not exposed to health hazards [1910.120(e)(3)(iii)]	24 hours initial training 8 hours supervised field experience 8 hours annual refresher
• Employees under (e)(3)(ii) or (iii) who become general site workers under (e)(3)(i) [(e)(3)(iv)]	16 hours of additional training 16 hours of additional supervised field experience
Supervisors/Managers [1910.120(e)(4)]	
• Supervisors of general site employees (e.g., equipment operators, general laborers, etc.)	40 hours initial training 24 hours supervised field experience 8 hours of specialized training in employer's safety and health-related programs 8 hours annual refresher
• Supervisors of employees occasionally on site for a limited task (e.g., groundwater monitoring, land surveying, etc.) with minimal exposure	24 hours initial training 8 hours supervised field experience 8 hours specialized training in employer's safety and health-related programs 8 hours annual refresher
• Supervisors of employees regularly on site who are not exposed to health hazards	24 hours initial training 8 hours supervised field experience 8 hours specialized training in employer's safety and health-related programs 8 hours annual refresher

Employees at all sites must not perform any hazardous waste operations unless they have been trained to the level required by their job function and responsibility, and have been certified by a qualified trainer as having completed the necessary training.

Employees who receive the specified training must receive a written certificate upon successful completion of that training. That training need not be repeated if the employee goes to work at a new site; however, the employee must receive the necessary additional site-specific training needed to work safely at the new site. All employees must receive 8 hours of annual refresher training as indicated in Table 2.

It is critically important for a portion of the training program to include hands-on experience and exercises to provide trainees with an opportunity to become familiar with equipment and safe practices in a non-hazardous setting. Traditional hands-on training is the preferred method to ensure that employees are prepared to safely perform these tasks. The purpose of hands-on training, for example, in the donning and doffing of PPE, is twofold: first, to ensure that employees have an opportunity to learn by experience, and second, to assess whether they have mastered the necessary skills.

Note: Non-mandatory Appendices C and E to HAZWOPER provide useful compliance guidelines and assistance in developing a site-specific training curriculum used to meet the training requirements in paragraph (e) of the standard.

Medical Surveillance

A medical surveillance program is required under the overall safety and health program and is also part of the site HASP. This program helps to assess and monitor the health and fitness of employees working with hazardous substances. The employer must establish a medical surveillance program for the following:

- All employees exposed or potentially exposed to hazardous substances or health hazards above permissible exposure limits (PELs) (or above published exposure levels if there is no PEL) for more than 30 days per year,

- Employees who wear a respirator for 30 days or more per year on site or as required by 1910.134,
- Employees who are exposed to unexpected or emergency releases of hazardous wastes above exposure limits (without wearing appropriate protective equipment) or who show signs, symptoms, or illness that may have resulted from exposure to hazardous substances, and
- Employees responsible for responding to on-site hazardous materials (HAZMAT) releases (i.e., on-site HAZMAT team).

All examinations must be performed by or under the supervision of a licensed physician, without cost to the employee, without loss of pay, and at a reasonable time and place. Examinations must include a medical and work history with special emphasis on symptoms related to the handling of hazardous substances and health hazards and to fitness for duty, including the ability to wear any required PPE under conditions that may be expected at the worksite. These examinations must be given as follows:

- Prior to job assignment and annually thereafter (or every 2 years if a physician determines that interval is appropriate),
- At the termination of employment or reassignment to an area where medical examinations are not required,[2]
- As soon as possible for employees injured or who become ill from exposure to hazardous substances during an emergency, or who develop signs or symptoms of overexposure from hazardous substances, and
- At more frequent times if the examining physician believes that an increased frequency is medically necessary.

The employer must give the examining physician a copy of the standard and its appendices, a description of the employee's duties relating to his or her exposures, the exposure levels or anticipated exposure levels, a description of any personal protective and respiratory equipment used or to be used, and any information from previous medical examinations. The employer must obtain a written opinion from the physician that contains the results of the medical examination and any detected medical conditions that

[2] If the employee has not had an examination within the last 6 months.

would place the employee at an increased risk from exposure, any recommended limitations on the employee or upon the use of PPE, and a statement that the employee has been informed by the physician of the medical examination. The physician is not to reveal, in the written opinion given to the employer, specific findings or diagnoses unrelated to employment.

Employers should be aware that there are medical surveillance requirements in other OSHA substance-specific standards that may be applicable for individual sites where these hazardous substances are present (e.g., lead, asbestos, and benzene). These substance-specific standards are included under 29 CFR Part 1910 Subpart Z – Toxic and Hazardous Substances.

Engineering Controls, Work Practices, and PPE

To the extent feasible, the employer must institute engineering controls and work practices to help reduce and maintain employee exposure to or below permissible exposure limits. To the extent this is not feasible, engineering and work practice controls may be supplemented with PPE. Examples of suitable and feasible engineering controls include the use of pressurized cabs or control booths on equipment and/or remotely operated material handling equipment. Examples of safe work practices include removing all non-essential employees from potential exposure while opening drums, wetting down dusty operations, and placing employees upwind of potential hazards.

When engineering controls and work practices are not sufficient to reduce employee exposures to or below established exposure limits or are not feasible for site operation, employers must provide employees with and require the use of PPE. The HAZWOPER standard further requires the employer to develop a written PPE program for all employees involved in hazardous waste operations. This program is required under the overall safety and health program and the PPE to be used by employees for each of the site tasks and operations being conducted must be included in the HASP. The PPE program must include an explanation of equipment selection and use, maintenance and storage, decontamination and disposal, training and proper fit, donning and doffing procedures, inspection, in-use monitoring, program evaluation, and equipment limitations.

PPE typically includes respiratory protection, dermal protection (e.g., gloves and protective clothing), eye protection (e.g., safety glasses, goggles, and face shields), and foot protection (e.g., steel-toed boots and chemical-resistant booties). Employers must select and ensure that employees use PPE in accordance with 29 CFR Part 1910, Subpart I. PPE at hazardous waste sites is often identified as a level of protection and frequently referred to as level A, B, C, or D. Non-mandatory Appendix B to HAZWOPER provides guidelines for selecting PPE and further discusses the levels of protection. The bullets below summarize each level of protection.

- Level A provides the greatest level of skin, respiratory, and eye protection (e.g., totally-encapsulating chemical protective suit with self-contained breathing apparatus (SCBA)),
- Level B provides the greatest level of respiratory protection, but a lesser level of skin protection than Level A (e.g., chemical-resistant clothing with SCBA),
- Level C provides skin protection, but a lesser level of respiratory protection than Level B (e.g., chemical-resistant clothing with air-purifying respirator), and
- Level D provides only minimal protection for nuisance contamination only (e.g., general coveralls, hard hat, safety glasses, and boots).

The level of PPE, including the type of material that the components are made from, will depend on the types of hazardous substances present, their concentrations, the physical requirements of the task, the duration of the task, environmental conditions (e.g., heat stress), and the needs of the user (e.g., dexterity). These factors may be different for each site task or operation, which is why HAZWOPER requires that PPE be evaluated for each task and not for the site as a whole. In addition, hazardous conditions can quickly change, requiring a modification (e.g., upgrading or downgrading) to the level and type of PPE to provide the protection needed for the new conditions. For example, a backhoe hitting a pocket of contaminated soil can result in elevated chemical concentrations requiring a possible upgrade to the level of PPE. When conditions exist that create the possibility of immediate death, immediate serious injury or illness, or impairment of escape, employees must be provided with the highest level of PPE. If the

hazard is due to a chemical that poses an inhalation hazard, then a positive pressure SCBA or positive pressure air-line respirator must be used. If a chemical poses a severe skin hazard or is highly toxic and can be readily absorbed through the skin, then appropriate protective clothing (e.g., totally-encapsulating suit) must be worn.

In contrast, it is just as important to know when to downgrade the level and type of PPE through exposure monitoring. Wearing too much PPE increases certain hazards such as heat stress, physical and psychological stress, and can impair vision, mobility and communication.

Exposure Monitoring

Airborne contaminants can present a significant threat to employee safety and health, thus making air monitoring an important component of an effective safety and health program. The employer must conduct monitoring during the initial site entry at uncontrolled hazardous waste sites to identify conditions that are IDLH, exposures over PELs or other published exposure levels, exposures over a radioactive material's dose limits, or other dangerous conditions, such as the presence of flammable atmospheres or oxygen-deficient atmospheres. Accurate information on the identification and quantification of airborne contaminants is useful for the following:

- Indicating work areas and identifying tasks and operations where exposure controls are needed,
- Selecting PPE,
- Assessing the potential health effects of exposure, and
- Determining the need for specific medical monitoring.

After a hazardous waste cleanup operation begins, the employer must periodically monitor those employees who are likely to have higher exposures to determine if they have been exposed to hazardous substances in excess of permissible exposure limits. The employer also must monitor for any potential condition that is IDLH or for exposures over PELs or other published exposure levels since prior monitoring. Situations when periodic monitoring is required include the following:

- Work begins on a different portion of the site,

- New contaminants are being handled,
- Different type of operation is initiated, and
- Handling leaking drums or working in areas with obvious liquid contamination.

Informational Programs

As part of the overall safety and health program in paragraph (b) of the standard, employers must develop and implement a program that informs employees, contractors, and subcontractors of the nature, level, and degree of exposure from performing hazardous waste cleanup operations (Note: this requirement is typically addressed through initial and refresher training under paragraph (e) of the standard). Those employees who are working outside of the cleanup operations (e.g., clerical staff who work on the periphery of the site) and there is no reasonable possibility for employee exposure to safety or health hazards are not covered by the standard.

Handling and Labeling Drums and Containers

The handling of hazardous substance-containing drums and containers presents a variety of potential health and safety hazards to employees such as fires/explosions, vapor generation, and physical injury caused by moving heavy containers by hand. As a result, employers must ensure that appropriate methods, procedures, and equipment are in place that address at least the following:

- Drums and containers used during the cleanup must meet the required OSHA, EPA (40 CFR Parts 264-265 and 300), and Department of Transportation (DOT) regulations (49 CFR Parts 171-178), and must be properly inspected and labeled,
- Damaged drums or containers that may rupture or spill when moved must be emptied of their contents using a device classified for the material being transferred, and must be properly discarded,
- In areas where spills, leaks, or ruptures may occur, the employer must furnish employees with salvage drums or containers, an adequate quantity of absorbent material, and approved fire-extinguishing equipment in the event of small fires,

- The employer must inform employees of the appropriate hazard warnings for labeled drums, the removal of soil or coverings, and the dangers of handling unlabeled drums or containers without prior identification of their contents,
- To the extent feasible, the moving of drums or containers must be kept to a minimum, and a program must be implemented to contain and isolate hazardous substances being transferred into drums or containers, and
- Ground penetrating systems or other detection devices must be used to estimate the location and depth of buried drums and containers.

The employer also must ensure that safe work practices are instituted before opening a drum or container. For example, air-line respirators and approved electrical equipment must be protected from possible contamination, and all equipment must be kept behind any existing explosion barrier.[3]

Only tools or equipment that prevent ignition shall be used. All employees not performing the operation shall be located at a safe distance and behind a suitable barrier to protect them from accidental explosions. In addition, standing on or working from drums or containers is prohibited. Special care also must be taken when an employee handles containers of shock-sensitive waste, explosive materials, or laboratory waste packs. When shock-sensitive wastes are handled, the employer must ensure the following:

- Evacuate non-essential employees from the transfer area,
- Protect equipment operators from exploding containers by using a barrier, and
- Make available a continuous means of communication (e.g., suitable radios or telephones), and a distinguishable and distinct alarm system to signal the beginning and end of activities where explosive wastes are handled.

If drums or containers bulge or swell or show crystalline material on the outside, they must not be moved onto or from the site unless appropriate containment procedures have been implemented. In

[3] A physical barricade, natural or man-made, that has been designed and constructed of sufficient thickness and density to withstand or deflect the impact loads of an adjacent explosion.

addition, lab packs must be opened only when necessary and only by a qualified person. Prior to shipment to a licensed disposal facility, all drums or containers must be properly labeled and packaged for shipment. Staging areas also must be kept to a minimum and provided with adequate access and exit routes.

Decontamination Procedures

Decontamination procedures are a component of the site HASP and, consequently, must be developed, communicated to employees, and implemented before employees enter a hazardous waste site. As necessary, the site safety and health officer must require and monitor decontamination of the employee and decontamination or disposal of the employee's clothing and equipment, as well as the substances used for decontamination, before the employee leaves the work area. If an employee's non-impermeable clothing becomes grossly contaminated with hazardous substances, the employee must immediately remove that clothing and take a shower. Impermeable protective clothing must be decontaminated before being removed by the employee.

Protective clothing and equipment must be decontaminated, cleaned, laundered, maintained, or replaced to retain its effectiveness. The employer must inform anyone who launders or cleans such clothing or equipment of the potentially harmful effects of exposure to hazardous substances.

Employees who are required to shower must be provided showers and change rooms that meet the requirements of 29 CFR 1910.141, Subpart J – General Environmental Controls. (Note: HAZWOPER requires showers and change rooms when a hazardous waste cleanup operation will take six months or longer to complete). In addition, unauthorized employees must not remove their protective clothing or equipment from change rooms unless authorized to do so.

Note: Chapter 10 of the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities ("4-Agency Manual") provides more information on decontamination procedures; Appendix D of the manual offers example decontamination layouts for levels A, B, and C.

Hazardous Waste Site Emergency Response

Proper emergency planning and response are important elements of the site HASP that help minimize employee exposure and injury. The standard requires that the employer develop and implement a written emergency response plan to handle possible emergencies before performing hazardous waste site operations. Employers who will evacuate their employees from the worksite location when an emergency occurs and who do not permit any of their employees to assist in handling the emergency are exempt from developing an emergency response plan. These employers must, however, develop an emergency action plan complying with 29 CFR 1910.38 to ensure the safe evacuation of personnel.

Employers that require site personnel to respond to site emergencies must develop a written emergency response plan that includes the following elements:

- Personnel roles, lines of authority, and communication procedures,
- Pre-emergency planning,
- Emergency recognition and prevention,
- Emergency medical and first-aid treatment,
- Methods or procedures for alerting on-site employees,
- Safe distances and places of refuge,
- Site security and control,
- Decontamination procedures,
- Critique of response and follow-up,
- Personal protective and emergency equipment, and
- Evacuation routes and procedures.

In addition to the above requirements, the plan must include site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, state, and federal government agencies. The procedures must be compatible with and integrated into the disaster, fire, and/or emergency response plans of the site's nearest local, state, and federal agencies.

The plan requirements also must be rehearsed regularly, reviewed periodically, and amended, as necessary, to keep them current with new or changing site conditions or information. A dis-

tinguishable and distinct alarm system must be in operation to notify employees of emergencies. The emergency plan also must be made available for inspection and copying by employees, their representatives, OSHA personnel, and other government agencies with relevant responsibilities.

When deemed necessary, employees must wear a positive-pressure self-contained breathing apparatus or a positive pressure air-line respirator equipped with an escape air supply. In addition, backup and first-aid support personnel must be available for assistance or rescue.

Sanitation of Temporary Workplaces

Each temporary worksite must have a supply of potable water (suitable for drinking) that is stored in tightly closed and clearly labeled containers and equipped with a tap. Disposable cups and a receptacle for cup disposal also must be provided. The employer also must clearly mark all water outlets that are unsafe for drinking, washing, or cooking. Temporary worksites must be equipped with toilet facilities.

When sleeping quarters are provided, they must be heated. In addition, washing facilities for all employees must be near the worksite, within controlled work zones,[4] and equipped to enable employees to remove hazardous substances. The employer also must ensure that food service facilities are licensed.

New Technology Programs

New technology for improving the protection of employees on worksites must be evaluated and implemented by employers. Examples of such equipment may include new foams, absorbents, adsorbents, and neutralizers that can be used to decrease the level of exposures to hazardous substances. It is important that new technologies, equipment, or control measures be evaluated by the employer to determine the effectiveness of employee protection before being implemented on site. Manufacturer and supplier information should be reviewed by the employer as part of the evaluation.

[4] A designated work area within the worksite.

Provisions of HAZWOPER for TSD Facilities

Safety and Health Program

The standard requires the employer at covered TSD facilities to develop and implement a written safety and health program for employees involved in hazardous waste operations at the facility. The program must be designed to identify, evaluate, and control safety and health hazards in the facility for the purpose of employee protection. It must also include emergency response procedures that meet the requirements of paragraph 1910.120(p)(8), discussed below. Further, the written program must address appropriate site analysis, engineering controls, maximum exposure limits, hazardous waste handling procedures, and uses of new technologies. As conditions or operations change at a TSD facility, reevaluations should be periodically conducted and necessary updates made to the safety and health program.

Note that employers who are conditionally exempt small quantity (hazardous waste) generators (CESQGs) under 40 CFR 261.5 and other (waste) generators who are qualified under 40 CFR 262.34 for exemptions ("excepted employers") do not have to comply with paragraphs (p)(1) – (p)(7), but do have to follow the emergency response provisions under (p)(8). Excepted employers have the option of evacuating their employees from the facility under (p)(8)(i) unless the EPA or a state agency requires that those employees perform emergency response.

Hazard Communication Program

An effective hazard communication program is a key element required of TSD facilities. The employer must develop a hazard communication program, including providing proper labeling of chemicals, access to material safety data sheets (MSDSs), and appropriate employee training in accordance with OSHA's Hazard Communication standard (HCS), 29 CFR 1910.1200. Hazardous wastes are specifically excluded from the HCS and, therefore, do not have to be included in the TSD's hazard communication program. Other hazardous "non-waste" chemicals to which employees may be exposed at the facility must be included. For example, any neutralizer or other chemical that meets the definition of a hazardous chemical and that is brought on site to

treat or process hazardous waste would be required to be included in the TSD facility's hazard communication program.

Medical Surveillance, Decontamination, New Technology, and Material Handling Programs

TSD facilities are also required to implement some of the same requirements specified for hazardous waste sites. Paragraph (p) of HAZWOPER references several sections within paragraphs (b)-(o) as follows:

- Medical surveillance program 1910.120(p)(3) references 1910.120(f),
- Decontamination program 1910.120(p)(4) references 1910.120(k),
- New technology program 1910.120(p)(5) references 1910.120(o), and
- Material handling program 1910.120(p)(6) references 1910.120(j)(1)(ii) through (viii), (xi), (j)(3), and (j)(8).

See the discussion of these requirements earlier in this publication.

Training Program

Employers must develop a training program as part of the overall safety and health program for employees who are exposed to health hazards or hazardous substances at TSD operations. This program must ensure that employees are properly trained to perform their assigned duties and functions in a safe and healthful manner so as not to endanger themselves or other employees.

Paragraph (p)(7) distinguishes between new employees and current employees with respect to required training, as indicated in Table 3. Site personnel who are expected to respond to emergencies at the TSD site must receive additional training. This training is discussed under TSD Facility Emergency Response, below.

Table 3 – Training Requirements – TSD Facilities

• New employees [1910.120(p)(7)(i)]	24 hours initial training 8 hours annual refresher
• Current employees [1910.120(p)(7)(ii)]	Proven previous equivalent training or experience or 24 hours initial training 8 hours annual refresher

Employees must not perform any operations involving exposure to health hazards or hazardous substances at a TSD facility unless they have been trained by a competent trainer to the level required by their job function and responsibility. New employees must also receive a certificate showing that they have completed the necessary training.

TSD Facility Emergency Response

The standard requires that a TSD facility develop and implement a written emergency response plan in accordance with paragraph (p)(8) as part of their safety and health program to handle possible emergencies at the facility. Employers who will evacuate their employees from the facility when an emergency occurs and who do not permit any of their employees to assist in handling the emergency are exempt from developing an emergency response plan and from the training requirements of paragraph (p)(8). These employers must, however, develop an emergency action plan and ensure that the training of site personnel is consistent with 29 CFR 1910.38.

Employers that require TSD employees to respond to site emergencies must develop a written emergency response plan that includes the following elements:

- Pre-emergency planning and coordination with outside parties,
- Personnel roles, lines of authority, training and communication,
- Emergency recognition and prevention,
- Safe distances and places of refuge,
- Site security and control,
- Evacuation routes and procedures,
- Decontamination procedures,
- Emergency medical treatment and first aid,
- Emergency alerting and response procedures,
- Critique of response and follow-up, and
- PPE and emergency equipment.

If a TSD facility has an emergency response plan required by 40 CFR 264 and 265, containing all of the elements above, a separate written plan will not be required.

The employer must periodically review the facility's emergency response plan and update it as necessary to reflect new or changing site conditions or information.

Employees of TSD facilities who are expected to perform emergency response must be properly trained prior to responding to emergencies. The training must cover the employer's emergency response plan, standard operating procedures, appropriate PPE, and procedures for handling an emergency response. The employer must also document the employee's completion of training or certify the employee's competency.

Provisions of HAZWOPER for Emergency Response Operations

As previously discussed, paragraph (q) of HAZWOPER applies to releases of, or substantial threats of releases of, hazardous substances without regard to their location. (Note: Except emergency response on hazardous waste sites is covered by paragraph (l) and emergency response on TSD facilities is covered by paragraph (p)(8)). Covered employees generally include first responders, such as HAZMAT team members, fire and rescue personnel, police, and medical personnel who may respond to emergency releases.

Note that paragraph (q) does not apply to "incidental releases" of hazardous substances, which are releases that do not pose a significant safety or health hazard to employees in the immediate vicinity or to the employees cleaning it up. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up. An example may include a laboratory pint-size container that does not pose a significant safety and health threat at that volume. Conversely, a release of chlorine gas above the IDLH level, obscuring visibility and moving through a facility, is an example of a release requiring an emergency response under paragraph (q). In many cases, releases may be incidental or require an emergency response depending on the circumstances of the release (e.g., toxicity and volume of the substance, training and experience of employees in the immediate area, availability of response equipment and PPE, etc.).

Emergency Response Plan

A written emergency response plan (ERP) must be developed and implemented prior to allowing or permitting an employee response to a hazardous substance release. The plan must cover reasonably anticipated worst-case scenarios. In facilities where the employer has chosen to evacuate employees in the case of an emergency and the employer does not permit any of their employees to assist in handling the emergency, the employer is exempt from paragraph (q) and does not need to develop an emergency response plan. These employers must, however, develop an emergency action plan for the safe evacuation of personnel and ensure that the training of employees is consistent with 29 CFR 1910.38.

Employers that require employees to respond to emergencies must develop a written emergency response plan that includes the following elements:

- Pre-emergency planning and coordination with outside parties,
- Personnel roles, lines of authority, training, and communication,
- Emergency recognition and prevention,
- Safe distances and places of refuge,
- Site security and control,
- Evacuation routes and procedures,
- Decontamination,
- Emergency medical treatment and first aid,
- Emergency alerting and response procedures,
- Critique of response and follow-up, and
- PPE and emergency equipment.

Employers may use the local emergency response plan, or the state emergency response plan, if the above elements are covered, as part of their emergency response plan. Those items of the local and/or state emergency response plans that are addressed by Title III of the *Superfund Amendments and Reauthorization Act of 1986* (SARA) may be included in the employer's emergency plan for the employer's and employees' use.

Procedures for Handling an Emergency Response

HAZWOPER requires the implementation of an incident command system (ICS) for responses to an emergency release of hazardous

substances. The ICS is a widely accepted approach to effectively organize, control, and manage operations at an emergency incident. The individual in charge of the ICS is the senior official responding to the incident who oversees the coordination, direction, and actions of the response operations. All site communications are routed through the ICS and the senior official. Ultimately, the implementation of the ICS helps to reduce confusion, improve safety, organize and coordinate actions, and facilitates the effective management of the incident.

Compliance with the ICS, as defined by the National Incident Management System (NIMS), is consistent with compliance with using an ICS under this section of HAZWOPER. NIMS was published by the Department of Homeland Security (DHS) on March 1, 2004. The NIMS provides a consistent nationwide template for incident management that allows responders to work together more effectively. The NIMS adopts the ICS, including operating characteristics, interactive management components, and structure of incident management and emergency response organizations engaged throughout the life cycle of an incident.

The standard requires additional specific procedures for response operations. It requires the individual in charge (i.e., Incident Commander) of the ICS to evaluate site conditions and implement appropriate response operations, hazard controls, and PPE. A safety officer must be designated to provide direction and assistance to ensure the safety of response operations. It also requires that personnel in the area of the incident and related hazards be limited to those actively performing emergency response operations and that backup personnel stand by with appropriate equipment to provide assistance or rescue.

Training

Emergency responders must be trained prior to their participation in emergency response operations and their training must be based on the functions and duties the responders will be expected to perform. For example, if an employee is simply expected to notify the emergency response team upon discovery of an emergency release and evacuate from the area, the employee would be trained to the first responder awareness level; or if an employee who is responding initially in a defensive manner for the purpose of protecting nearby persons, property, or the environment from the

effects of the release, but does not approach the point of release, the employee would be trained to the first responder operations level. If, however, the employee is expected to approach the point of release for the purpose of stopping the release, the employee would minimally need to be trained to the HAZMAT technician level. If an employee is expected to have more direct and specific knowledge of the various hazardous substances and to assist the HAZMAT technician in the response, the employee would minimally need to be trained to the HAZMAT specialist level. Consequently, employers must evaluate the roles and tasks that employees will perform and train them appropriately.

In addition to the training levels established in the standard for emergency responders, two additional personnel classifications are provided: skilled support personnel (SSP) and specialist employees. SSP are employees who are needed to temporarily perform immediate emergency support work (e.g., excavator operators). SSP must be provided an initial site briefing covering PPE use, the chemical hazards involved, and the tasks to be performed. Specialist employees are those who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances. They may be called upon to provide technical advice or assistance at a hazardous substance release incident.

SSP and specialist employees are covered in paragraphs (q)(4) and (q)(5) of HAZWOPER. Required training and competencies for emergency responders is covered in paragraph (q)(6) and trainer qualifications is covered in paragraph (q)(7). Refresher training is covered in paragraph (q)(8) of the standard (see Table 4).

Trainers who teach any of the training subjects must have either completed a training course on the subjects they are expected to

Table 4 – Training Requirements – Emergency Response Operations

Emergency Responders [1910.120(q)(6)]	
• First Responder Awareness Level (Witnesses or discovers a release of hazardous substances and is trained to notify the proper authorities)	Sufficient initial training and competencies Annual refresher
• First Responder Operations Level (Responds to the releases of hazardous substances in a defensive manner, without trying to stop the release)	8 hours initial training and competencies Annual refresher

• Hazardous Materials Technician (Responds aggressively to stop the release of hazardous substances)	24 hours initial training and competencies Annual refresher
• Hazardous Materials Specialist (Responds with and in support of HAZMAT technicians, but who have specific knowledge of various hazardous substances)	24 hours initial training and competencies Annual refresher
• On Scene Incident Commander (Assumes control of the incident scene beyond the first responder awareness level)	24 hours initial training and competencies Annual refresher
Other Employees [1910.120(q)(4)-(q)(5)]	
• Skilled Support Personnel (temporarily perform immediate emergency support work)	Safety and health briefing at response site
• Specialist Employees (provide technical advice/assistance on specific hazardous substances)	Annual demonstration of specialized competencies

teach or they must have the training and/or academic credentials and instructional experience to demonstrate competent teaching skills. In addition, employees need not necessarily receive a certificate, but the employer must certify training with some form of documentation. (Note: the HAZWOPER standard does not contain a specific certification requirement for Awareness Level training). It is considered good practice to provide employees with a training certificate as well as to document the training in the employer's records. The employer also must document in its ERP its training plan for personnel who respond to hazardous substance incidents.

Medical Surveillance

Members of organized and designated HAZMAT teams and HAZMAT specialists must receive a baseline physical examination and medical surveillance in accordance with 1910.120(f). (Note: see the previous discussion on medical surveillance at 1910.120(f)). The examinations must be provided prior to initial assignment, at least yearly thereafter, and at termination of employment. The medical examination must include a medical and work history with the actual content of medical examinations to be determined by the attending physician.

Medical consultations must also be provided in cases where employees are injured or develop signs or symptoms of overexposure to health hazards. Consultations must be provided as soon as possible following an incident, and also at additional times if the physician determines that it is necessary. Similar to examinations, the content of consultations is determined by the attending physician.

PPE

Designated HAZMAT team members and hazardous materials specialists must be provided with the appropriate protective clothing and other necessary equipment. Furthermore, employers must ensure that paragraphs (g)(3)-(g)(5) of HAZWOPER are followed, which cover the requirements for PPE selection, totally-encapsulating chemical protective suits, and the PPE program. (Note: see the previous discussion on PPE at 1910.120(g)).

Post-Emergency Response Operations

After an emergency release, it is often necessary to transition from an emergency response operation to a hazardous substances cleanup operation. In such cases, post-emergency cleanup begins when the individual in charge of the emergency response declares the site to be under control and ready for cleanup. The post-emergency cleanup can be performed by two basic groups of employees: employees of the site where the emergency release occurred or employees from off the site.

Employees of the site who perform post-emergency cleanup on plant property are employees that are typically more familiar with the types of hazardous substances of the site, site conditions, and methods to appropriately protect themselves from the related hazards. As a result, these employees do not need to be trained in accordance with 1910.120(e). However, these employees do have to complete the training required by 1910.38, 1910.134, 1910.1200, and other appropriate safety and health training made necessary by the tasks they are expected to perform during the cleanup.

Employees who do not work at the facility where the release occurred, and who arrive after the emergency is declared to be over, must meet the requirements of 1910.120(b)-(o) and be trained in accordance with 1910.120(e). In other words, their participation in

the post-emergency cleanup is to be treated as hazardous waste site cleanup operations as discussed earlier in this publication. The HAZWOPER standard does, however, allow emergency responders, trained in accordance with 1910.120(q)(6), who took part in the initial emergency response to continue working through the cleanup operation without any additional training.

Related Requirements

Recordkeeping

In 1988, OSHA revised the standard requiring employers to provide employees with information to assist in the management of their own safety and health. The standard, Access to Employee Exposure and Medical Records (29 CFR 1910.1020), permits direct access to these records by employees exposed to hazardous materials, or by their designated representatives, and by OSHA.

The employer must keep exposure records for 30 years and medical records for at least the duration of employment plus 30 years. Records of employees who have worked for less than 1 year need not be retained after employment, but the employer must provide these records to the employee upon termination of employment. First-aid records of one-time treatment need not be retained for any specified period. Employers should be aware that OSHA's substance-specific standards under 29 CFR Part 1910 Subpart Z – Toxic and Hazardous Substances may have their own record-retention requirements and these would take precedence over 1910.1020.

The employer must inform each employee of the existence, location, and availability of these records. Whenever an employer plans to stop doing business and there is no successor employer to receive and maintain these records, the employer must notify employees of their right to access these records at least 3 months before the employer ceases to do business. At the same time, employers also must notify the National Institute for Occupational Safety and Health.

Under paragraph (f)(8) of HAZWOPER, at a minimum, medical records must include the following information:

- Employee's name and social security number,

- Physicians' written opinions,
- Employee's medical complaints related to exposure to hazardous substances, and
- Information provided to the treating physician.

Hazard Communication Standard (HCS)

Title III of SARA requires employers covered by the Hazard Communication standard (29 CFR 1910.1200) to maintain material safety data sheets (MSDSs) and submit such information to state emergency response commissions, local emergency planning committees, and the local fire department. Under this requirement, employers covered by HCS must provide chemical hazard information to both employees and surrounding communities. Consequently, in the case of an emergency response to hazardous substances at a site, the local fire department may already be aware of the chemicals present at the site since data may have been provided through MSDSs.

Bloodborne Pathogens Standard (BBP)

The Bloodborne Pathogens standard (29 CFR 1910.1030) may interface with HAZWOPER in several scenarios, including, but not limited to, cleanup of a hazardous waste site containing infectious waste, operation of a RCRA-permitted incinerator that burns infectious waste, and response to an emergency caused by the uncontrolled release of infectious waste or where infectious waste is part of the release.

A specific example includes first-aid providers on a hazardous waste site who are expected to treat injured employees. Because these personnel have an anticipated exposure to blood or other potentially infectious materials, they would fall under the scope of the standard. (Note: other potentially infectious materials is defined in paragraph (b) of the BBP standard.)

Some basic requirements of the BBP standard include:

- A written exposure control plan, to be updated annually,
- Use of universal precautions,
- Consideration, implementation, and use of safer needle devices,

- Use of engineering and work practice controls and appropriate PPE (e.g., gloves, face and eye protection, gowns, etc.),
- Hepatitis B vaccination provided to exposed employees at no cost,
- Medical follow-up in the event of an "exposure incident,"
- Use of labels or color-coding for items such as sharps disposal containers and containers for regulated waste, contaminated laundry, and certain specimens,
- Employee training, and
- Proper containment of all sharps and regulated waste.

Other OSHA Standards

In addition to the related OSHA standards above, there are many other OSHA standards that can interface with HAZWOPER depending on the specific hazards on the site and the types of work being performed. A few of these other standards may include:

- 29 CFR 1910.146 (Permit-Required Confined Spaces),
- 29 CFR 1910.147 (Control of Hazardous Energy [Lockout/Tagout]),
- 29 CFR Part 1910 Subpart Z (Toxic and Hazardous Substances), and
- 29 CFR Part 1926 Subpart P (Excavations)

Other Resources

- OSHA, Hazardous Waste Safety and Health Topics web page, http://www.osha.gov/SLTC/hazardouswaste/index.html;
- OSHA, Emergency Preparedness and Response Safety and Health Topics webpage, http://www.osha.gov/SLTC/emergencypreparedness/index.html;
- OSHA, Brownfields Safety and Health Topics webpage, http://www.osha.gov/SLTC/brownfields/index.html;
- OSHA, e-HASP2 eTool, http://www.osha.gov/dep/etools/ehasp/index.html;
- OSHA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities ("4-Agency Manual"),

http://www.osha.gov/Publications/complinks/OSHG-HazWaste/4agency.html; and

- OSHA, ICS eTool, http://www.osha.gov/SLTC/etools/ics/index.html.

Summary

Hazardous substances, when not handled properly, can pose a significant health and safety risk to employees. OSHA recognizes the need to protect the health and safety of employees who are exposed to these substances and work on hazardous waste sites or at TSD facilities, and who perform emergency response. The HAZWOPER standard provides employers and employees with the information and training criteria necessary to improve workplace health and safety, thereby reducing the number of injuries and illnesses resulting from exposure to hazardous substances. To effectively protect the health and safety of employees, it is critical that employers understand the scope and application of the standard and can determine which sections apply to their specific scenario. For example, hazards generated from an explosion at a chemical plant are very different from those existing on a hazardous waste site where site conditions are more controlled and hazards have been more fully identified. The purpose of this publication is to provide an understanding of how HAZWOPER applies to different work environments, and to address the related requirements for those worksites.

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace, and to your life.

Safety and Health Program Management Guidelines

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection, can save time and money, increase productivity and reduce employee injuries, illnesses, and related workers' compensation costs.

To assist employers and employees in developing effective safety and health programs, OSHA published recommended Safety and Health Program Management Guidelines (54 *Federal Register* (16): 3904-3916, January 26, 1989). These voluntary guidelines can be applied to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management system:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The *Federal Register* notice is available online at www.osha.gov.

State Programs

The Occupational Safety and Health Act of 1970 (OSH Act) encourages states to develop and operate their own job safety and

health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico, and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; Connecticut, New Jersey, New York, and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices, and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards, and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for a period of 1 year. For more information concerning consultation assistance, see OSHA's website at www.osha.gov.

Voluntary Protection Programs (VPP)

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the OSH Act. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees, and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed at the end of this publication.

Strategic Partnership Program

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist, and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives, and others (e.g., trade unions, trade and professional associations, universities, and other government agencies).

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

Alliance Program

Through the Alliance Program, OSHA works with groups committed to safety and health, including businesses, trade or professional organizations, unions and educational institutions, to leverage resources and expertise to develop compliance assistance tools and resources and share information with employers and employees to help prevent injuries, illnesses and fatalities in the workplace.

Alliance program agreements have been established with a wide variety of industries including meat, apparel, poultry, steel, plastics, maritime, printing, chemical, construction, paper and telecommunications. These agreements are addressing many safety and health

hazards and at-risk audiences, including silica, fall protection, amputations, immigrant workers, youth and small businesses. By meeting the goals of the Alliance Program agreements (training and education, outreach and communication, and promoting the national dialogue on workplace safety and health), OSHA and the Alliance Program participants are developing and disseminating compliance assistance information and resources for employers and employees such as electronic assistance tools, fact sheets, toolbox talks, and training programs.

OSHA Training and Education

OSHA area offices offer a variety of information services, such as compliance assistance, technical advice, publications, audiovisual aids, and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, employees, and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers include colleges, universities, and nonprofit training organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on training and education, contact the OSHA Training Institute, Directorate of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL, 60005, (847) 297-4810, or see Training on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA regional office listed at the end of this publication.

Information Available Electronically

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include electronic compliance assistance

tools, such as *Safety and Health Topics Pages, eTools, Expert Advisors;* regulations, directives, publications and videos; and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives, and more can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, toll-free phone (866) 512-1800.

OSHA Publications

OSHA has an extensive publications program. For a listing of free items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210; telephone (202) 693-1888 or fax to (202) 693-2498.

Contacting OSHA

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA Regional office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

By visiting OSHA's website at www.osha.gov, you can also:

- File a complaint online,
- Submit general inquiries about workplace safety and health electronically, and
- Find more information about OSHA and occupational safety and health.

OSHA Regional Offices

Region I
(CT,* ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565-9860

Region II
(NJ,* NY,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378

Region III
(DE, DC, MD,* PA, VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900

Region IV
(AL, FL, GA, KY,* MS, NC,* SC,* TN*)
61 Forsyth Street, SW, Room 6T50
Atlanta, GA 30303
(404) 562-2300

Region V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
(312) 353-2220

Region VI
(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(972) 850-4145

Region VII
(IA,* KS, MO, NE)
Two Pershing Square
2300 Main Street, Suite 1010
Kansas City, MO 64108-2416
(816) 283-8745

Region VIII
(CO, MT, NO, SO, UT,* WY*)
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80202-5716
(720) 264-6550

Region IX
(AZ,* CA,* HI,* NV,* and American Samoa, Guam and the Northern Mariana Islands)
90 7th Street, Suite 18-100
San Francisco, CA 94103
(415) 625-2547

Region X
(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553-5930

* These states and territories operate their own OSHA-approved job safety and health programs and cover state and local government employees as well as private sector employees. The Connecticut, New Jersey, New York and Virgin Islands plans cover public employees only. States with approved programs must have standards that are identical to, or at least as effective as, the Federal OSHA standards.

Note: To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-0SHA.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Preparing and Protecting Security Personnel in Emergencies

OSHA 3335-10N 2007

Employers are responsible for providing a safe and healthful workplace for their employees. OSHA's role is to assure the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This handbook provides a general overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts for additional guidance on OSHA compliance requirements.

This information is available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

Preparing and Protecting Security Personnel in Emergencies

U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3335-10N
2007

Contents

Introduction

Security personnel (i.e., guards) potentially risk occupational exposures to hazardous substances including chemical, biological, radiological, and nuclear (CBRN) materials during emergencies. Emergencies involving the release of hazardous chemicals at industrial facilities, including chemical manufacturers and industrial facilities utilizing hazardous substances, are the most likely and predictable incidents that may involve security personnel. Security personnel, however, work at a variety of locations with the potential for emergency incidents. Although general chemical release emergencies may be the most likely, incidents resulting from natural disasters or involving weapons of mass destruction (WMD) are also of concern to both private and public sector employers and the security personnel they employ. Security personnel working at companies for the protection of the facilities, materials, and products, as well as those employed by government agencies, are often called upon to provide support during hazardous substance emergencies and the emergency planning in preparation for such incidents is key to successful implementation of emergency response operations.

This document specifically addresses emergencies involving hazardous substance releases and provides guidance for employers, and their security personnel, who may be involved in the emergency response. It does not address other safety and health hazards (e.g., workplace violence) that security personnel may be exposed to while performing their routine duties.

The role that security personnel will have in an emergency is important with respect to the success of emergency response operations. The role they are assigned by their employer is also important in determining the training, information, and personal protective equipment they must be provided to safely perform their duties. In many cases, they will be the first individuals to a release scene and their role in such cases must be clearly understood. Security personnel who are expected by their employer to provide support during an emergency involving a hazardous substance

release, arising from natural disasters, or involving WMDs must receive training in accordance with OSHA requirements. Security personnel expected by their employer to assume an emergency responder role during a hazardous substance release are covered by OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, or the parallel OSHA-approved State Plan standards. OSHA's HAZWOPER standard, 29 CFR 1910.120, describes the level of training for personnel involved in emergency responses consistent with the types of activities and duties their employers expect them to perform during emergency response operations.

OSHA considers sound planning the first line of defense in all types of emergencies. In this guidance document, OSHA provides practical information to assist employers of security personnel in addressing employee protection and training as part of emergency planning for hazardous substance, natural disaster, and WMD-type incidents. While terrorist incidents are not emergencies that OSHA expects an employer to reasonably anticipate, by tailoring emergency plans to reflect the reasonably predictable "worst-case" scenario under which security personnel might work, employers may use these plans to guide decisions regarding appropriate training and personal protective equipment (PPE).

This document does not include any evaluation or discussion of security guard licensing. It is important to note, however, that some states have licensing programs for security personnel, including different levels of licensing in some cases. The licensing process in these states often includes classroom training and could include training directly related to the role of security personnel during emergencies. The state governments should be consulted regarding their respective licensing programs. Furthermore, this guidance document does not address the potential hazards associated with workplace violence during such emergency incidents. Compliance assistance information concerning workplace violence may be found on OSHA's Workplace Violence Safety and Health Topics webpage at www.osha.gov.

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Assistant Secretary of Labor
Occupational Safety and Health

This document is not a standard or regulation, and it creates no new legal obligations. This document is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. Pursuant to the *Occupational Safety and Health Act,* employers must comply with hazard-specific safety and health standards promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement any recommendations in this guidance document is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause

Hazardous Substance Releases and WMD Incidents

The release of hazardous substances can result from a number of incidents and involve a wide variety of substances and hazards. From a release of a hazardous gas, such as chlorine, from damaged piping at a water treatment plant to a spill from an overturned truck hauling hydrochloric acid, the range of possible scenarios, hazardous substances, and associated hazards is extensive. Hazardous substance releases can occur in numerous forms, such as gases, liquids, dusts, and other forms, and may result from a wide array of incidents, such as an industrial accident, natural disasters, vehicle accidents, and other sources. In addition, with the increased threat of terrorist attacks, the range of possible scenarios is expanded.

Security personnel may play an integral part in emergency response efforts because they may be the first to discover and take action upon an emergency release of hazardous substances. Those security personnel expected to take on an emergency response role must be familiar with the potential hazardous substance releases and emergency incidents to which they may be exposed. The employer must ensure that these individuals understand the hazardous substance releases that may occur in their workplaces and the risks associated with them. If they play a key role in communicating the existence of an emergency release, they must be well-versed in emergency alerting and communication procedures, including who to contact according to their emergency response plan. A well-trained security staff can help to ensure the proper evacuation of employees and the public, the quick response of an emergency response team, and the proper handling of bystanders and representatives of the media.

In the case of chemical plants and similar facilities where chemicals are stored or handled routinely, hazardous substance releases are considered a potential threat and employers are required to develop emergency response plans to address them. Unless an employer plans to evacuate all personnel at the time of an uncontrolled release, it must have an emergency response plan

to respond to potential releases of hazardous substances and that plan helps to ensure that the employer has properly trained and prepared employees to effectively perform their duties during response operations. Using the example discussed above of a chlorine gas release resulting from damaged piping at a water treatment plant, the following scenario illustrates the role security personnel are likely to fill during such an incident.

> During his normal rounds of a facility, one of the plant's security personnel, trained to the first responder awareness level, notices a chemical leak from a section of piping. The security guard immediately leaves the area and activates the alarm to notify the plant's emergency response team of the emergency. Once in a remote area away from the release, the security guard contacts the emergency response team leader and relays the information he knows about the location of the release and other pertinent details. The emergency response team leader assigns the security guard the task of controlling access to the release area from a safe remote location. The security guard performs his duties from the remote location until the response operations are completed by the emergency response team.

Whether a chemical plant or a government facility, terrorist attacks are not emergency incidents that can be reasonably anticipated by employers. While an employer may not have planned for a WMD attack, the HAZWOPER training requirements apply and the use of proper PPE is expected for any security personnel likely to have a role in response operations to any resulting hazardous substance releases. The following scenario illustrates the probable role of security personnel during a terrorist attack.

> A contracted security guard working for a private bus company identifies an unmarked box at one of the company's bus stations. As the security guard approaches the box for better identification, she notices wet-like stains around the lower part of the box and a small amount of smoke or fumes coming from the box's seams. The security guard immediately backs away from the box and evacuates

all bus customers and other personnel from the station. The security guard then calls the company's designated and trained hazardous materials response team to report the box. The response team is sent to the location for response actions while simultaneously contacting local governmental emergency response authorities. The bus company also halts all bus operations in the area of the station until the emergency response team properly clears the area of the potential emergency release and declares the potential emergency over.

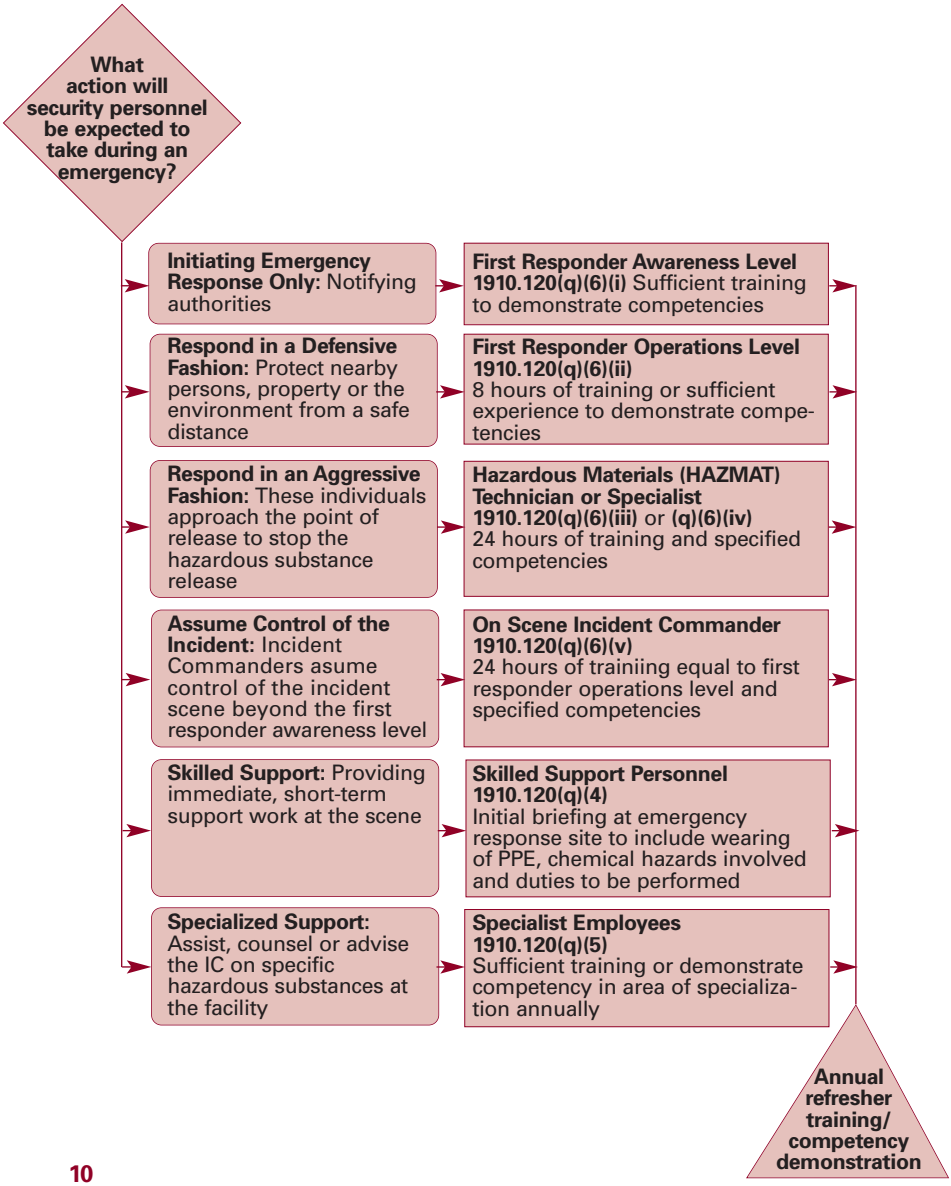
In both cases discussed above, security personnel serve the role of first responder awareness level and must be trained accordingly. Those employees assigned roles as first responder awareness level responders are limited to initiating emergency response procedures by notifying the proper authorities and must not attempt to stop the release or approach the release area. As discussed in the following section, "Emergency Response Roles and Training", the expected duties of security personnel are likely to be consistent with this level of training. Some employers, however, may choose to have security personnel perform duties beyond awareness level training. Ultimately, the training and PPE that security personnel must be provided must be appropriate for the roles which their employers expect them to fulfill during an emergency response to hazardous substance releases.

Emergency Response Roles and Training

OSHA's HAZWOPER standard requires that employees be trained to perform their anticipated job duties without endangering themselves or others. Specific emergency response training requirements for security personnel must be derived from the roles that they are assigned in their employer's emergency response plan. To determine the level and type of training employees need under 1910.120(q), consideration must be given to the actions an employee is expected to take in response to a release (e.g., notify authorities and evacuate, enter a danger area and stop a release), the hazards they may be exposed to while performing these actions, and the skills and knowledge they must have in order to

perform these actions safely. This determination must be based on worst-case scenarios. The following paragraphs as well as Figure 1 discuss the various roles and required training under the HAZWOPER standard.

Figure 1 - Emergency Response Roles and Training



Emergency Responders

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

Individuals who are likely to witness or discover a hazardous substance release and are assigned to initiate an emergency response sequence by notifying the proper authorities of the release must be trained to the first responder awareness level. Generally, the duties of security personnel will fall into this category and they should be trained accordingly, since they are likely to witness or discover a release of a hazardous substance and are expected to take no further action to control or stop the release or perform rescue in the release area.

Security personnel trained to the first responder awareness level are limited to activating an alarm, notifying appropriate authorities, and controlling access to the release from a remote area upon discovering a release requiring an emergency response. Once the site control zones and safe distances have been defined by emergency responders, security personnel trained to the awareness level may also control entry to and exit from the emergency site from a safe location. Security personnel cannot assist in setting up safe distances because they lack knowledge regarding the potential for exposure, explosions, or radiation. In other instances, security personnel at hospitals or an emergency site triage may help to maintain order and control traffic around the hospital or decontamination facilities. Security personnel may need to control a contaminated individual to reduce exposures or may need to prevent contaminated victims from bypassing proper decontamination. Security personnel assigned to roles where they may come in contact with contaminated victims, their belongings, equipment, or waste would require a higher level of training (e.g., First Responder Operations Level, see below).

The standard does not specify the length of training time required, only that security personnel at the first responder awareness level (1910.120(q)(6)(i)) shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

- An understanding of what hazardous substances are, and the risks associated with them in an incident.
- An understanding of the potential outcomes associated with

an emergency created when hazardous substances are present.
- The ability to recognize the presence of hazardous substances in an emergency.
- The ability to identify hazardous substances, if possible.
- An understanding of the role of the first responder awareness level individual in the employer's emergency response plan, including site security and control, and of the *U.S. Department of Transportation's Emergency Response Guidebook*.
- The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.

First Responder Operations Level – 29 CFR 1910.120(q)(6)(ii)

Security personnel who are expected to respond in a defensive manner to hazardous substance releases as part of the initial response for the purpose of protecting nearby persons, property, or the environment must be trained to the first responder operations level. Their role is to contain the release from a safe distance, to keep it from spreading, and to prevent exposures – they do not attempt to stop the release. Their defensive actions must be performed from a safe distance and may include activities such as placing absorbents, constructing dikes, or securing an area to prevent the dispersal of contaminants or agents. Operations level-trained security personnel must not enter the danger area, take any aggressive action to stop the release of hazardous substances, or perform rescue work in the release area. Those expected to take aggressive action or approach the danger area must be trained to at least the hazardous materials (HAZMAT) technician level (see below).

Security personnel at the first responder operations level (1910.120(q)(6)(ii)) must receive at least eight (8) hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level:

- An understanding of the basic hazard and risk assessment techniques.
- An understanding of how to select and use proper PPE

provided to the first responder operational level.
- An understanding of basic hazardous materials terms.
- An understanding of how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available within their unit.
- An understanding of how to implement basic decontamination procedures.
- An understanding of the relevant standard operating procedures and termination procedures.

Figure 2 – PPE Training

Security Personnel at Higher Responder Levels

While it is not expected or common, security personnel who are expected to respond in a fashion beyond defensive action – as discussed under first responder operations level – must be trained to the hazardous materials (HAZMAT) technician, HAZMAT specialist level, or On Scene Incident Commander level, as appropriate.

Hazardous Materials (HAZMAT) Technician Level – 29 CFR 1910.120(q)(6)(iii)

Those security personnel who will respond to releases in an aggressive fashion for the purpose of stopping the release must be trained to the hazardous materials (HAZMAT) technician level. These individuals approach the point of release to plug, patch, or otherwise stop the hazardous substance release. Security personnel at the HAZMAT technician level must receive at least 24 hours of training equal to the first responder operations level and, in addition, have competency in the following areas:

- An understanding of how to implement the employer's emergency response plan.

- An understanding of the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.
- The ability to function within an assigned role in the Incident Command System.
- An understanding of how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.
- An understanding of hazard and risk assessment techniques.
- The ability to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available within the unit.
- An understanding of and ability to implement decontamination procedures.
- An understanding of termination procedures.
- An understanding of basic chemical and toxicological terminology and behavior.

Hazardous Materials (HAZMAT) Specialist Level – 29 CFR 1910.120(q)(6)(iv)

Security personnel whose assigned duties parallel those of the hazardous materials (HAZMAT) technician and who respond to releases to provide support to HAZMAT technicians in the form of specialized knowledge of substances involved in the release are hazardous materials specialists. Their training must be consistent with 1910.120(q)(6)(iv). Security personnel at the HAZMAT specialist level must receive at least 24 hours of training equal to the technician level and, in addition, have competency in the following areas:

- An understanding of how to implement the local emergency response plan.
- An understanding of the classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.
- An understanding of the state emergency response plan.
- The ability to select and use proper specialized chemical personal protective equipment provided to the hazardous

materials specialist.
- An understanding of in-depth hazard and risk techniques.
- The ability to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- The ability to determine and implement decontamination procedures.
- The ability to develop a site safety and control plan.
- An understanding of chemical, radiological and toxicological terminology and behavior.

On Scene Incident Commander – 29 CFR 1910.120(q)(6)(v)

If security personnel are assigned duties by their employers consistent with the role of the On Scene Incident Commander, they must receive at least 24 hours of training equal to the first responder operations level and have competencies consistent with 1910.120(q)(6)(v). The competencies include the following:

- An understanding of and the ability to implement the employer's incident command system.
- The ability to implement the employer's emergency response plan.
- Knowledge and understanding of the hazards and risks associated with employees working in chemical protective clothing.
- The ability to implement the local emergency response plan.
- An understanding of the state emergency response plan and of the Federal Regional Response Team.
- Knowledge and understanding of the importance of decontamination procedures.

Refresher Training – 29 CFR 1910.120(q)(8)

All security personnel who are required to receive initial training as required by (q)(6) must also receive annual refresher training to maintain their skills and competencies, or demonstrate competency at least annually. The employer must assure that training is of sufficient content and duration to maintain the security personnel's

competencies for their expected duties. Refresher training may be given in segments throughout the year so long as the required refresher training has been completed by the employee's training anniversary date. Time spent by security personnel critiquing or reviewing incidents may also be credited toward their annual refresher training requirements.

Figure 3 – Annual Training

OSHA's intent is that employees complete their refresher training within twelve months of their initial training. If an employee has gone without refresher training for more than twelve months, there should be a record in the employee's file indicating why the training has been delayed and when the training will be completed. The employer must also evaluate whether the initial comprehensive training may need to be repeated. The need to repeat initial training must be determined based on the employee's familiarity with safety and health procedures and potential hazards, and must be judged on a case-by-case basis. Individual retention of information must be considered as well as the applicability of past training to the duties security personnel are assigned. Employees would not need to be retrained in those training elements for which they can demonstrate competency.

Skilled Support Personnel – 29 CFR 1910.120(q)(4)

Skilled support personnel (SSP) are those employees who are needed temporarily to perform immediate emergency support work. This category of employee was included in paragraph (q) to recognize the need at times for fast-response assistance by individuals who possess needed skills in the operation of certain equipment (e.g., earthmoving or digging equipment) in an emergency. In the case of security personnel, they may assist the Incident Commander (IC) of the response effort by providing access to secured areas or sections of a building, or by providing knowledge regarding a building's air handling facilities.

Since security personnel who may serve as SSP do not expect to regularly help in emergency response incidents and may have only minimal training, attention must be given to their proper safety and health protection at the scene before they participate in the incident. This must be accomplished by an on-site briefing that includes a discussion of the chemical and physical hazards present, the personal protective equipment (PPE) to be used, how the PPE is used and its limitations, the exact task(s) they are expected to perform, and the facility's or site's safety and health precautions and procedures.

Security personnel who are to enter contaminated areas on a regular basis can no longer be considered SSP employees, and require HAZWOPER training under paragraph (q)(6) discussed above.

Specialist Employees – 29 CFR 1910.120(q)(5)

A specialist employee is an expert who may assist, counsel, or advise the IC. Specialist employees may be individuals who work with and are trained in the hazards of a specific hazardous substance (e.g., radiological materials) and are by definition individuals specialized in their area of expertise, but do not necessarily have all of the competencies of the hazardous materials (HAZMAT) technician or HAZMAT specialist. If security personnel, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, they may be deemed specialist employees and provide technical assistance and advice to the IC in their area of expertise.

Specialist employees must annually receive training or demonstrate competency in the area of their specialization. Even though specialist employees are experts in their respective areas, they should also be trained in how to interact within the incident command structure (ICS), and how to follow the operating procedures established by their employer. Their training is also intended to inform them of the hazards that may be present at an emergency site.

Security personnel serving in the specialist employee role may not enter the danger area unless they are fully trained in the proper use of the required PPE and are accompanied by someone trained

to the HAZMAT technician level. Security personnel who are to enter contaminated areas on a regular basis can no longer be considered specialist employees, and they require HAZWOPER training under paragraph (q)(6) discussed above.

Personal Protective Equipment

The selection of personal protective equipment (PPE) is an important step in protecting personnel. Experienced safety and health staff should be consulted to ensure the proper selection of PPE (e.g., respirators, suits, gloves, footwear, face and eye protection) based on anticipated hazards at the emergency site. Employers must select PPE based on a hazard assessment that identifies the hazards to which security personnel are or might potentially be exposed to during an emergency incident, and ensure that selected equipment meets the requirements of 1910.120 and 1910 Subpart I. As stated previously, security personnel will typically be assigned a first responder awareness level role during emergencies and have either no or only minimal exposure to hazardous substances. This limited potential for exposure would require a lower level of PPE. Where security personnel's assigned roles include closer approach to the release area or involve potential exposures, the hazard assessment and selection of PPE must account for the higher level of potential exposures.

Figure 4 – Personal Protective Equipment

At facilities where the potential for hazardous substance releases can be anticipated, such as a chemical manufacturer or industrial plant utilizing hazardous substances, a hazard assessment can effectively be performed based on the hazardous substances

located on the site, potential emergency releases, and the hazards associated with them. For example, a food manufacturer may store and utilize ammonia for use in the cooling systems. The facility's safety and health staff can anticipate the potential hazardous substance releases based on site operations and perform a hazard assessment of potential exposures to site personnel, including security personnel, during an emergency release. Selection of PPE should be performed based on the hazard assessment and upgraded or downgraded throughout emergency response efforts as determined through consultation with the Incident Commander (IC) and the ICS safety officer.

The hazard assessment for PPE selection during chemical, biological, radiological, and nuclear (CBRN) incidents is a similar safety and health assessment except that many of the CBRN agents are highly toxic by both skin absorption and inhalation. Typical indicators of exposure such as odor, smoke, or fumes may not be present, and exposure monitoring is difficult for some of the compounds. Based on the hazardous substances and conditions known to be present, the site IC in charge of a response must implement appropriate emergency operations, including selection of appropriate PPE for employees who respond. To the extent feasible, employers of security personnel should consult with the IC, ICS safety officer, and/or their assigned section chief, e.g., the ICS Operations Chief, to determine appropriate PPE for their employees assisting in the response. Additionally, there may be a locally limited supply of CBRN-approved respirators and other PPE for a large response during initial emergency operations.

Respiratory Protection

When respiratory protection is an anticipated need for security or other personnel, the employer must develop and implement an effective respiratory protection program consistent with 29 CFR 1910.134(c). The written program must contain specific procedures describing how respirators will be selected, fitted, used, maintained and inspected in a particular workplace. The employer must include the following elements, as applicable, in the respiratory protection program:

- Procedures for:
  - Selecting appropriate respirators for use in the workplace.
  - Fit testing tight-fitting respirators.
  - Using respirators properly in routine situations as well as in reasonably foreseeable emergencies.
  - Cleaning, disinfecting, storing, inspecting, repairing, removing from service or discarding, and otherwise maintaining respirators. Also, you must establish schedules for these elements.
  - Ensuring adequate air supply, quantity, and flow of breathing air for atmosphere-supplying respirators.
  - Training employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations.
  - Regularly evaluating the effectiveness of the program.
- Provisions for medical evaluation of employees who must use respirators.
- Training employees in the proper use of respirators (including putting them on and removing them), the limitations on their use, and their maintenance.

When selecting respirators, employers and the IC for the response must consider the chemical and physical properties of the contaminant(s), as well as the toxicity and concentration of the hazardous material and the level of oxygen present. Other selection factors are the nature and extent of the hazard, work rate, area to be covered, mobility, work requirements and conditions as well as the limitations and characteristics of the available respirators. Furthermore, respiratory protection equipment must be used within the specifications and limitations accompanying the National Institute for Occupational Safety and Health (NIOSH) certification.

When selecting appropriate respirators for security personnel, the potential contaminants as well as the expected duties of the security personnel must be considered. If security personnel are to only perform activities from a remote distance and they are not expected to have exposure to the hazards, then respirators would not be required. Those in the role of first responder awareness level, for example, would be expected to have either no or only minimal exposure. Conversely, if security personnel are to approach the release area, such as a hazardous materials

(HAZMAT) technician, then a proper respirator must be provided. As required under 1910.120(q)(3)(iv), until the IC or employer has determined the potential air contaminant(s) through air monitoring, employees engaged in the hazardous substance response and exposed to actual or potential inhalation hazards must be provided and wear a positive pressure self-contained breathing apparatus (SCBA). With respect to CBRN agents, a NIOSH CBRN agent approved respirator would be required. If the CBRN agents or their concentrations are unknown or if the exposures are expected to be high, the proper respirator would be a NIOSH CBRN agent approved SCBA. On the other hand, if CBRN agents have been quantified and the exposures are lower, a NIOSH CBRN air-purifying respirator (APR) may be appropriate, provided the oxygen levels are not deficient.

Respirators for Non-Immediately Dangerous to Life or Health (IDLH) Environments

The selection of respirators for non-IDLH environments is dependent on a number of factors. When evaluating the proper respirator, the employer must consider expected chemical concentrations, the availability of proper cartridges for contaminant(s), the proper cartridge change schedule, and the maximum use concentration for a particular cartridge. Furthermore, the employer must give consideration to the work area, the tasks to be performed, and the health and comfort of those employees donning the respirator.

A tightly constrained area may not permit the use of a SCBA even though they might be an acceptable respirator choice otherwise. Likewise, working around obstructions that can snag hoses may limit the use of airline respirators. An employee's medical condition may impact respirator selection as wearing respiratory protection poses a physical burden on the wearer. When an employee's medical condition would prohibit restrictive breathing conditions, for example, negative pressure respirators would not be an appropriate choice. Lastly, employee comfort should be a consideration during the respirator selection process. Among air-purifying respirators (APRs), powered air-purifying loose-fitting helmets have been subjectively rated the best for breathing ease, skin comfort, and in-mask temperature and humidity while filtering facepieces are rated high for lightness and

convenience. Each, however, has its own drawbacks and all these factors, as well as the respirator's assigned protection factor (APF), must be taken into account during selection. See 29 CFR 1910.134 (d)(3)(i)(A) for APF requirements provided by OSHA's Respiratory Protection standard.

When selecting respirators for non-IDLH routine use, the employer must also consider additional problems related to reasonably foreseeable emergency situations. In addition, there are substance-specific standards, such as the Asbestos, Formaldehyde, Methlyene Chloride, and Hexavalent Chromium standards, that have specific respirator selection requirements.

One of the primary considerations for APRs is whether the protection will be for gases, vapors, and/or particulates. Certain respirator and filter combinations protect against one form of contaminant, but not the others. Table 1, below, lists the three types of APRs and their characteristics.

Table 1 Air-Purifying Respirator Characteristics

Respirator	Characteristics
Particulate Respirators	■ Do not protect against gases or vapors. ■ Capture particles in the air, such as dusts, mists, and fumes. ■ Generally become more effective as particles accumulate on the filter and plug spaces between the fibers. ■ Filters should be replaced when the user finds it difficult to breathe through them.
Combination Respirators	■ Normally used in atmospheres that contain hazards of both particulates and gases. ■ Have both particulate filters and gas/vapor filters. ■ May be heavier.
Gas & Vapor Respirators	■ Do not protect against airborne particles. ■ Normally used when there are only hazardous gases and vapors in the air. ■ Use chemical cartridges or canisters to remove dangerous gases or vapors. ■ Made to protect against specific gases or vapors. ■ Provide protection only as long as the cartridge's or canister's absorbing capacity is not depleted. ■ The service life of the cartridge or canister depends upon many factors and can be estimated in various ways.

Sections I. and II. of the Appendix (at pages 30 and 31) discuss respirators for different types of environments that may apply to security personnel assigned response roles at higher levels: immediately dangerous to life or health (IDLH) and CBRN environments. An employer must select the proper respiratory protection based on security personnel's expected duties, the contaminant(s) and the conditions present at the release site, the limitations of the respiratory protection available, and the respirator manufacturer specifications and guidance. The NIOSH respirator decision logic (See NIOSH Respirator Selection Logic 2004, NIOSH Publication No. 2005-100) may assist in selecting the proper respiratory protection.

Protective Clothing

General Guidelines

As mentioned earlier, emergency incidents involving hazardous substances, including CBRN agents, often include substances that are highly toxic by inhalation and/or skin absorption. While proper respiratory protection will protect security personnel from inhalation hazards, the responders can remain at risk without proper protective clothing. A key point made in the training section of this document is that security personnel are most likely to be assigned roles consistent with first responder awareness level. In this role, security personnel are not to approach the danger zone of the incident and must remain in safe areas that are free of contaminants. Accordingly, these security personnel do not face the potential for exposure to agents and, therefore, the need for protective clothing is diminished. Personnel who are designated to take on a role beyond first responder awareness level during an emergency incident must be provided protective clothing for protection against identified or potential contaminants that pose a skin hazard. Likewise, security personnel who serve as SSP or specialist employees and who may experience contaminant exposures must be provided appropriate protective clothing.

The selection of protective clothing or suits is a complex task and should be performed by knowledgeable personnel with experience in selecting protective equipment for contaminant exposure. Employers must consider the properties of the

contaminant(s), the toxicity and concentration of the hazardous material, and the tasks to be performed by those individuals wearing the clothing. Further, the performance characteristics of the clothing material against the contaminant(s) must be evaluated. The selection must consider how the material resists permeation, degradation, and penetration by contaminants involved in the incident.

The protective clothing guidance below is discussed in relation to levels of contamination, the zones of red, yellow, and green (see Figure 5). Those security personnel trained to the first responder awareness level would be expected to only take on roles in the Green Zone or further removed from the release area where there are no potential exposures. Those entering the Yellow Zone would minimally be trained to the first responder operations level and those entering the Red Zone would be trained to at least the hazardous materials (HAZMAT) technician level (see Training section, above). These zones of Red, Yellow, and Green are available to be used as complimentary guidance for personal protective equipment selection based on the level of knowledge about the emergency release. The use of the zones is neither mandatory nor exclusionary of other site control concepts, such as the traditional Exclusion (Hot), Contamination Reduction (Warm), and Support (Cold) Zones.

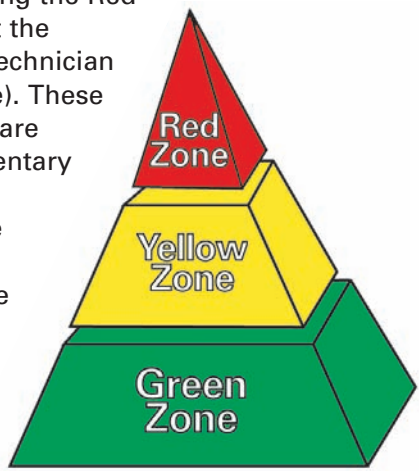


Figure 5 – OSHA's Response Zones

Red Zone areas are where significant contamination with hazardous substances or CBRN agents has been confirmed or is strongly suspected but the area has not been characterized. This area is presumed to be life-threatening from both skin contact and inhalation. Level A protection (1910.120 Appendix B)

is generally needed when the active release is still occurring, or the release has stopped but there is no information about the duration of the release or the airborne concentrations of substances. Responders going into a known release area where hazardous substances are suspected should be in a fully encapsulating protective suit until monitoring results allow for other decisions. Level A protection should be consistent with the description in 1910.120 Appendix B and, where CBRN agents are involved, suits should be appropriate for CBRN agents, e.g., meets the requirements of National Fire Protection Association (NFPA) 1994-2001, has been approved by NIOSH as a CBRN approved SCBA, has been tested by a third party such as the U.S. Army's Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) (formerly Soldier and Biological Chemical Command (SBCCOM)) or has undergone other manufacturer testing.

In addition to the requirements specified in 1910.120(q)(3), practices prudent for the Red Zone where the level of contamination or exposure is unknown include, but are not limited to, the following:

- Don appropriate PPE. A SCBA is required where the level of exposure is unknown and until the Incident Commander can determine that a decreased level of respiratory protection is appropriate.
- Assess the emergency site. Is there a spill, leak, or fire? Can the contaminant(s) be identified from a distance, e.g., Any labeling? Who is at risk? What actions are necessary?
- Develop an incident response plan and respond appropriately. Continually reassess the situation and modify the response and zone boundaries as appropriate.
- Limit responders to those actively performing response operations.
- Implement evacuation where necessary to protect life.
- Establish and follow effective lines of communication. Communicate status with Incident Command.
- Enforce appropriate Yellow Zone and Green Zone practices.

Yellow Zone areas are where contamination with hazardous substances or CBRN agents is possible but active release has ended and initial monitoring data exists. Areas in close proximity to the release area or that are known to be contaminated and certain job activities on the periphery of the release area should be considered for this zone. Risk factors that should be considered include determining the relative risk for job activities from skin contact and absorption potential, proximity to the incident, and wind directions. Protective clothing should be selected by knowledgeable personnel based on the specific hazards and characteristics of the identified contaminants.

In addition to the requirements specified in 1910.120(q)(3), practices prudent for the Yellow Zone where the area is known to be contaminated include, but are not limited to, the following:

- Don appropriate PPE. Based on monitoring results, the Incident Commander must select PPE appropriate to the exposures and related hazards.
- Perform tasks within the characterized zone as per the incident response plan.
- Limit those in the Yellow Zone to those actively performing response-related duties.
- Establish and follow effective lines of communication. Plan for and be prepared to request assistance and/or provide emergency backup to responders performing actions in the Red Zone.
- Enforce appropriate Green Zone practices.

Green Zone areas are where contamination with hazardous substances or CBRN agents is unlikely. This zone covers the area beyond the expected significant dispersal range of the initial release and secondary contamination range caused by traffic and emergency responders. Persons in this area are not expected to be exposed to hazards presented by the incident contaminants. Generally, protective clothing will not be required for personnel in this area, including those security personnel at the first responder awareness level. Because of the concern or potential for a minimal level of transient or unknown exposures in the aftermath of an emergency incident, prudent practices for the Green Zone include, but are not limited to, the following:

- Inform people of the location of the release and the control zones.
- Provide information regarding signs and symptoms of exposure.
- Suggest a means for reporting suspected exposures.
- Suggest attention to general hygiene practices.
- Provide information on voluntary use of PPE.

Protective Clothing Guidance in the Appendix at page 34 provides references to assist in the selection of chemical- and CBRN-protective clothing where the emergency response roles of security personnel necessitate such protective equipment, i.e., those personnel assigned to take action closer to the release area such as HAZMAT technician or HAZMAT specialist level personnel.

General References

OSHA References

OSHA, "Emergency Preparedness and Response Safety and Health Topics Web Page."
www.osha.gov/SLTC/emergencypreparedness/index.html

OSHA, "Workplace Violence Safety and Health Topics Web Page."
www.osha.gov/SLTC/workplaceviolence/index.html

OSHA, "Evacuation Plans and Procedures eTool."
www.osha.gov/SLTC/etools/evacuation/index.html

Additional References

DOT ERG2004, "Emergency Response Guidebook."

FEMA 508-6, "Typed Resource Definitions, Law Enforcement and Security Resources."

FEMA 426, "Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings."

FEMA 427, "Primer for Design of Commercial Buildings to Mitigate Terrorist Attacks."

FEMA 452, "Risk Assessment: A How-To Guide to Mitigate Potential Terrorist Attacks."

NIOSH 2005-149, "NIOSH Pocket Guide to Chemical Hazards."

USPS, "Best Practices for Mail Center Security."

Abbreviations

APER – Air-purifying escape respirator

APF – Assigned protection factor

APR – Air-purifying respirator

CBRN – Chemical, biological, radiological, and nuclear

HAZMAT – Hazardous materials

HAZWOPER – Hazardous Waste Operations and Emergency Response standard

IC – Incident Commander

ICS – Incident command structure

IDLH – Immediately dangerous to life or health

NFPA – National Fire Protection Association

NIOSH – National Institute for Occupational Safety and Health

PPE – Personal protective equipment

SAR – Supplied-air respirator

SCBA – Self-contained breathing apparatus

SSP – Skilled support personnel

WMD – Weapon(s) of mass destruction

Appendix

As discussed earlier in this publication, the expected duties of security personnel are commonly consistent with the first responder awareness level of training. Some employers, however, may choose to assign security personnel duties beyond awareness level training. In each case, employers must assure that the training and PPE security personnel are provided are appropriate for the roles they are expected to fulfill during an emergency response. This appendix provides a discussion of respirators and protective clothing often necessary with higher levels of emergency response duties and associated training levels.

I. Respirators for Immediately Dangerous to Life or Health (IDLH) Environments

Atmospheres that are IDLH are those where an atmospheric concentration of any toxic, corrosive or asphyxiant substance poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere. Oxygen-deficient atmospheres and those atmospheres that are not or cannot be estimated must be treated as IDLH environments.

OSHA's Respiratory Protection standard, 1910.134, requires that employers provide atmosphere-supplying respirators for employees who are to enter IDLH atmospheres. Atmosphere-supplying respirators are designed to provide breathable air from a clean air source other than the surrounding contaminated work atmosphere. They include SCBA units, combination respirators, and supplied-air respirators (SARs). Specifically, 1910.134(d)(2) requires either a full

Figure 6 – Air Purifying Respirator (APR)

facepiece pressure demand SCBA with a minimum 30-minutes service life or a combination full facepiece pressure demand SAR with an auxillary self-contained air supply.

Air-purifying respirators (APRs) are not permitted to be used in IDLH and oxygen-deficient atmospheres. An APR works by filtering or scrubbing harmful substances from the air as the user breathes in the surrounding air through respirator filters or cartridges that contain sorbents. An APR can range from a simple, disposable mask to sophisticated devices. Unlike SCBAs and combination SARs with a self-contained air supply, APRs do not supply the needed oxygen to the wearer.

In addition, 1910.134(g)(3) requires that prior to entering an IDLH environment, standby employees located outside the IDLH atmosphere must be available to provide an effective emergency rescue. Standby employees must be equipped with the appropriate equipment such as pressure-demand or other positive pressure self-contained breathing apparatus (SCBA), or a pressure-demand or other positive pressure supplied-air respirator with auxiliary SCBA. The outside personnel maintain communication with the entrant(s) and may perform outside rescue and other duties that do not interfere with their primary role of support, but are required to be trained and suitably equipped to enter the IDLH, if necessary to provide emergency rescue.

II. Respirators for CBRN Agent Environments

For security personnel who will respond to emergency incidents involving potential exposure to CBRN agents, the employer must select and provide respirators that are CBRN agent approved by NIOSH. Currently, NIOSH has only certified a number of SCBA, APR, and air-purifying escape respirator (APER) units.

Figure 7 – SCBA Gear

CBRN-Approved SCBAs

In response to a CBRN incident, security personnel must use NIOSH-approved CBRN SCBA respirators when the types of inhalation hazards and their concentrations are unknown or are expected to be high. CRBN SCBA respirators must also be chosen when the atmospheres are known IDLH or oxygen-deficient. NIOSH approval under the program signifies that an SCBA is expected to provide needed protection to first responders in situations where an act of terror has released harmful chemical, biological, or radioactive materials into the air. SCBAs approved by NIOSH for CBRN hazards are available on the NIOSH website.

To determine if a given SCBA has been tested and certified by NIOSH for use by emergency responders in CBRN environments:

- Look to see if the CBRN Agent Approval label is on the respirator. If an SCBA is CBRN-approved by NIOSH, it will always carry a NIOSH CBRN Agent Approval label (See Figure 8). If this label is not on the SCBA, the device is not approved by NIOSH for use by emergency responders in CBRN environments.
- Additional information is provided through the NIOSH matrix-style approval labels found in the "Instruction Manual" for the respirator. The "Instruction Manual" is shipped by the manufacturer with the respirator.

Figure 8 – NIOSH CBRN Agent Approval Label

Once chosen, care must be given to the proper use of the SCBA consistent with the respirator instruction manual. Furthermore, direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid, chemical disposal of the SCBA after decontamination is necessary. Based on evaluation of the respirator contamination and condition, disposal of the SCBA may also be necessary for SCBAs contaminated with biological or radiological agents.

CBRN-Approved APRs and APERs

A CBRN APR full facepiece respirator provides a lower level of protection than a SCBA and should generally only be selected for security personnel once conditions are understood and exposures are determined to be at lower levels. A CBRN APR respirator must not be used in atmospheres where hazard concentrations are IDLH or oxygen-deficient, or where the concentrations are not fully characterized. If unknown or high levels of hazard are encountered due to a secondary hazard source during normal use, the user should immediately leave the area. NIOSH is currently drafting detailed user guidance for the CBRN APR.

NIOSH has also approved some air-purifying escape respirators (APERs) for escape from CBRN environments. A NIOSH approval signifies the APER is expected to protect the general working population in escape scenarios from CBRN exposures at a terrorist incident. The approved APERs use a chemical cartridge combined with a particulate filter to purify contaminated air and are approved for 15- and 30-minute escapes. Selection of these CBRN APERs for security personnel must be limited to those individuals whose expected duties do not require them to enter or approach the danger area of a CBRN release. Security personnel trained to and expected to perform duties consistent with the first responder operations level or higher must not be provided an APER for their response to a CBRN incident. APERs are certified solely for escape from CBRN environments. Conversely, those security personnel trained to and expected to perform duties of the first responder awareness level may be provided CBRN APERs for escape from a CBRN release area. The roles of these individuals during an emergency release call for the initiation of a response effort by notifying authorities and additional actions from the safety of a

remote area away from the danger of the release.

Three types of labels are included with CBRN APR and APER respirators: a full canister label located on the canister, a matrix-style canister approval label, and a matrix-style respirator approval label. The matrix-style approval labels are part of the user's instructions or are included as an insert with the packaging. All three labels include a NIOSH Approval number and CBRN protection level in addition to other respirator/canister information. APRs and APERs approved by NIOSH for CBRN hazards are available on the NIOSH website (www.cdc.gov/niosh).

III. Protective Clothing Guidance

The selection of chemical- or CBRN-protective clothing is a complex task that should be performed by experienced and knowledgeable personnel. These personnel should have experience in selecting protective equipment for the particular agent and possess knowledge of available clothing materials. Clothing for security personnel should be selected by evaluating the performance characteristics of the material against the particular contaminants and the site- and task-specific conditions and requirements. The following references provide guidance on selecting chemical- and CBRN-protective clothing.

- Guide for the Selection of Personal Protection Equipment for Emergency First Responders. National Institute of Justice (NIJ). Guide 102–00. November 2002. www.ojp.usdoj.gov/nij/pubs-sum/191518.htm.
- Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders. National Institute of Justice (NIJ). Guide 103-00. October 2001. www.ojp.usdoj.gov/nij/pubs-sum/189724.htm.
- Recommendations for Chemical Protective Clothing - A Companion to the NIOSH Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health (NIOSH). NTIS No. PB98-137730. February 1998. www.cdc.gov/niosh/ncpc/ncpc1.html.
- A Guide for Evaluating the Performance of Chemical Protective Clothing. National Institute for Occupational Safety and Health (NIOSH). DHHS (NIOSH) Publication No. 90-109. June 1990. www.cdc.gov/niosh/90-109.html.
- Standard on Vapor-Protective Ensembles for Hazardous

Materials Emergencies. National Fire Protection Association (NFPA). NFPA 1991. 2005 edition. www.nfpa.org.

- Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies. National Fire Protection Association (NFPA). NFPA 1992. 2005 edition. www.nfpa.org.
- Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents. National Fire Protection Association (NFPA). NFPA 1994. 2001 edition. www.nfpa.org.
- Emergency Response Guidebook. ERG2004. Department of Transportation, The Office of Hazardous Materials Safety. 2004. http://hazmat.dot.gov/pubs/erg/gydebook.htm.

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace, and to your life.

Safety and Health Program Management Guidelines

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection and can save time and money (about $4 for every dollar spent) and increase productivity and reduce employee injuries, illnesses, and related workers' compensation costs.

To assist employers and employees in developing effective safety and health programs, OSHA published recommended Safety and Health Program Management Guidelines (54 Federal Register (16): 3904-3916, January 26, 1989). These voluntary guidelines can be applied to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management system:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The *Federal Register* notice is available online at www.osha.gov.

State Programs

The *Occupational Safety and Health Act of 1970* (OSH Act) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; Connecticut, New Jersey, New York and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices, and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards, and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investiga-

tion inspections) for a period of 1 year. For more information concerning consultation assistance, see OSHA's website at www.osha.gov.

Voluntary Protection Programs (VPP)

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the OSH Act. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees, and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed at the end of this publication.

Strategic Partnership Program

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist, and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives, and others (e.g., trade unions, trade and professional associations, universities, and other government agencies).

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

Alliance Program

Through the Alliance Program, OSHA works with groups committed to safety and health, including businesses, trade or professional organizations, unions and educational institutions, to leverage resources and expertise to develop compliance assistance tools and resources and share information with employers and employees to help prevent injuries, illnesses and fatalities in the workplace.

Alliance Program agreements have been established with a wide variety of industries including meat, apparel, poultry, steel, plastics, maritime, printing, chemical, construction, paper and telecommunications. These agreements are addressing many safety and health hazards and at-risk audiences, including silica, fall protection, amputations, immigrant workers, youth and small businesses. By meeting the goals of the Alliance Program agreements (training and education, outreach and communication, and promoting the national dialogue on workplace safety and health), OSHA and the Alliance Program participants are developing and disseminating compliance assistance information and resources for employers and employees such as electronic assistance tools, fact sheets, toolbox talks, and training programs.

OSHA Training and Education

OSHA area offices offer a variety of information services, such as compliance assistance, technical advice, publications, audiovisual aids and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants, federal agency personnel, and private sector employers, employees, and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers include colleges, universities, and nonprofit training organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL 60005, (847) 297-4810, or see *Outreach* on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA regional office listed at the end of this publication.

Information Available Electronically

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include electronic compliance assistance tools, such as Safety and Health Topics, eTools, Expert Advisors; regulations, directives and publications; videos and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives and more can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, toll-free phone (866) 512-1800.

OSHA Publications

OSHA has an extensive publications program. For a listing of free or sales items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210: Telephone (202) 693-1888 or fax to (202) 693-2498.

Contacting OSHA

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA Regional or Area office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

By visiting OSHA's website at www.osha.gov, you can also:

- file a complaint online,
- submit general inquiries about workplace safety and health electronically, and
- find more information about OSHA and occupational safety and health.

OSHA Regional Offices

Region I
(CT,* ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565-9860

Region II
(NJ,* NY,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378

Region III
(DE, DC, MD,* PA, VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900

Region IV
(AL, FL, GA, KY,* MS, NC,* SC,* TN*)
61 Forsyth Street, SW, Room 6T50
Atlanta, GA 30303
(404) 562-2300

Region V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
(312) 353-2220

Region VI
(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(972) 850-4145

Region VII
(IA,* KS, MO, NE)
Two Pershing Square
2300 Main Street, Suite 1010
Kansas City, MO 64108
(816) 283-8745

Region VIII
(CO, MT, ND, SD, UT,* WY*)
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80202-5716
(720) 264-6550

Region IX
(American Samoa, AZ,* CA,* Guam,
HI,* NV,* Northern Mariana Islands)
90 7th Street, Suite 18-100
San Francisco, CA 94103
(415) 625-2547

Region X
(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553-5930

* These states and territories operate their own OSHA-approved job safety and health programs (Connecticut, New Jersey, New York and the Virgin Islands plans cover public employees only). States with approved programs must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

Note: To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-OSHA.

Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

OSHA® QUICK CARD™

Protecting Worker Safety and Health Under the National Response Framework

During a disaster, protecting response and recovery workers is essential for assuring a successful response and recovery. When large-scale disasters overwhelm State and local assets, the National Response Framework (NRF) Worker Safety and Health Support Annex can provide the technical assistance needed to help protect Federal, State, tribal, and local organizations' response and recovery workers. Depending upon the scope, complexity, and hazards associated with the incident, these services can include:

- Identifying and assessing worker health and safety hazards present at the incident site and in the environment.
- Assessing the resources needed to protect workers and identifying the sources available to meet these needs.
- Providing technical expertise in industrial hygiene, occupational safety and health, structural collapse engineering, safety engineering, radiation safety, biological and chemical agent response, and occupational medicine.
- Managing the creation and implementation of a site-specific health and safety plan (HASP).
- Monitoring and managing worker safety and health hazards through on-site identification, evaluation, analysis, and mitigation, including personal exposure monitoring.
- Providing assistance with developing, implementing, and monitoring the personal protective equipment (PPE) program, including the selection, use, and decontamination of PPE.
- Coordinating the collection and management of exposure and accident/injury data to identify trends and facilitate data sharing.
- Coordinating and providing incident-specific response and recovery worker training.
- Assisting with the development and distribution of educational materials on preventing and mitigating hazards.

For more complete information:

OSHA® Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA

OSHA 3356-09N-08

OSHA® QUICK CARD™

Coordinating Responder Health and Safety

In the event of a major disaster, only the health and well-being of response and recovery workers can ensure that the victims themselves are cared for properly. When State, tribal, and local assets are overwhelmed and assistance is needed to protect employees during an emergency, FEMA can activate OSHA to coordinate employee safety and health. OSHA coordinates the resources and technical assistance provided under the NRF Worker Safety and Health Support Annex (see other side). Assistance can be requested through FEMA at a Joint Field Office and at FEMA's National and Regional Response Coordination Centers. When activated, OSHA will work within the incident command system to provide technical assistance to the site safety officer.

DOL/OSHA coordinates the activities of the Federal agencies that provide the core architecture for employee safety and health technical support during an all-hazards event or when otherwise directed.

Cooperating Agencies:

- Department of Defense
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Environmental Protection Agency
- Other Responding Organizations

For further information on responder health and safety, please consult the NRF Worker Safety and Health Support Annex or for a list of resources available to response workers, please visit http://www.osha.gov/SLTC/emergencypreparedness/index.html.

For more complete information:

OSHA® Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov (800) 321-OSHA