

## Overview

Hazardous waste refers to discarded substances in solid, liquid, or gaseous form that can harm humans, other living organisms, or the environment.

This is a plain-language definition of hazardous waste. You will find formal definitions in Environmental Protection Agency rules 40 CFR 261.3 and 49 CFR 171.8.

### Categories of Workers

The Hazardous Waste Operations and Emergency Response standard, (HAZWOPER) applies to the following employers and their employees:

| Employer Category  | Type of Site   |
|--|--|
| Required <b>cleanup operations</b> involving hazardous substances (required by a government agency). | Uncontrolled hazardous-waste sites.                    |
| Corrective actions involving cleanup operations.   | Sites covered by the Resource and Recovery Act (RCRA). |
| Voluntary cleanup operations.  | Uncontrolled hazardous waste sites.                    |
| Operations at treatment, storage, and disposal (TSD) facilities.                                     | TSD sites licensed under RCRA.                         |
| Emergency response operations (for releases of hazardous substances).                                | Any site.  |

### What are clean-up operations?

- These are the activities an employer does to clean up a site containing hazardous substances. What complicates this simple definition are the categories of clean-up operations. They include: Clean-up required by a government agency, cleanup operation on sites covered by the Resource Conservation and Recovery Act (RCRA), and voluntary clean-up operations. “Voluntary” means that a government agency recognizes that a site contains hazardous substances that may pose a safety or health threat to workers or the environment until it is controlled.
- If you are an employer and you are involved in cleaning up a hazardous-waste site, you must comply.

**What are operations at TSD facilities?** A TSD facility employs workers who treat, store, or dispose of hazardous waste. If you are a TSD facility employer, you must comply. Included in this category are facilities that generate hazardous waste.

**Are municipal or other sanitary landfills covered by HAZWOPER?** Yes, if they employ workers who handle or clean up hazardous waste.

**Are leaking underground storage tanks considered hazardous waste sites?** Yes.

## Section I

For Employers Engaged in Required, Corrective, or Voluntary Operations

### Contents

- The Written Safety and Health Program for Cleanup Operations
- Site Evaluation
- Organizational Structure
- Comprehensive Work Plan
- Site Control
- Site-Specific Safety and Health Plan
- Education and Training
- Medical Surveillance
- Hazard Control and Personal Protective Equipment (PPE)
- Air and Personnel Monitoring
- Informing Employees and Contractors
- Handling Hazardous Materials
- Decontamination
- Emergency Response
- Illumination
- Sanitation at Temporary Workplaces
- Evaluating New Technology

## The Written Safety and Health Program for Cleanup Operations

### Program Elements

The table below shows the elements that your written Safety and Health Program must include and describes why they are necessary. Use it as a guide to help you develop a new program or evaluate an existing one.

| <b>Program Element</b>                         | <b>Purpose</b>  |
|--|---|
| <b>Site Evaluation</b>                         | Before your employees begin work at a new site, a qualified person must evaluate the site to identify hazards and to determine how to control the hazards.  |
| <b>Organizational Structure</b>                | Establishes the chain of command for directing site operations and defines employees' responsibilities at the site.   |
| <b>Comprehensive Work Plan</b>                 | Defines the work objectives, the employees' tasks, and the resources employees need to accomplish the tasks.  |
| <b>Site Control</b>                            | Establishes procedures to control employee exposure to hazardous substances before cleanup work begins at the site.   |
| <b>Site-Specific Safety and Health Program</b> | Identifies risks associated with site-specific hazards and describes procedures for protecting employees from the hazards.                                  |
| <b>Education and Training</b>                  | Identifies who must be trained, training topics, frequency of training, and qualifications of trainers.   |
| <b>Medical Surveillance</b>                    | Describes the purpose of medical examinations, their frequency, what the examinations include, and required information for the physician and the employee. |
| <b>Hazard Control and PPE</b>                  | Describes the engineering controls, work practices, and personal protective equipment needed to protect employees.  |

| <b>Program Element</b>                     | <b>Purpose</b>   |
|--|--|
| <b>Air and Personnel Monitoring</b>        | Describes how and when air monitoring will be used to identify and quantify site-specific safety and health hazards. |
| <b>Informing Employees and Contractors</b> | Informs employees and contractors about hazards they may encounter on the site.                                      |
| <b>Handling Hazardous Materials</b>        | Describes appropriate methods for handling and transporting hazardous materials.                                     |
| <b>Decontamination</b>                     | Describes procedures for decontaminating employees exposed to hazardous substances.                                  |
| <b>Emergency Response</b>                  | Describes critical activities for dealing with site-specific emergencies.  |
| <b>Illumination</b>                        | Ensures that employees have enough sight to do their work safely.  |
| <b>Sanitation at Temporary Workplaces</b>  | Provides for potable water, toilets, washing, and showering facilities at temporary workplaces.                      |
| <b>Evaluating New Technology</b>           | Describes policy for evaluating and adopting improved products to protect employees involved in clean-up operations. |

## **Site Evaluation**

### **Purpose**

Before your employees begin work at a new site, a qualified person must do a preliminary site evaluation to accomplish the following:

- Identify specific hazards to which employees may be exposed.
- Determine what safety and health controls will protect employees from the hazards. Use the preliminary site evaluation to prepare and update your site-specific safety and health plan. Soon after employees begin working at the site, a qualified person should do a detailed site evaluation.

### **Elements**

A preliminary site evaluation should provide you with the following information:

- Site hazards, including the physical or chemical properties of hazardous substances and how employees could be exposed to them.
- Employee risks associated with exposure to the hazardous substances.
- Where hazardous substances could leak or disburse.
- Site location, size, topography, and access routes.
- Employees' tasks and the time it will take them to complete the tasks.
- Capabilities of emergency responders, including their availability and response times.
- What personal protective equipment employees will wear.

### **Informing Employees**

You must inform employees about the chemical, physical, and toxicological properties of hazardous substances to which they may be exposed before they begin work at the site.

## **Organizational Structure**

### **Purpose**

The organizational structure is the part of your program that establishes the worksite chain of command and defines supervisors' and other employees' responsibilities.

### **Chain of Command**

The chain of command includes responsibilities for the following individuals:

- A general supervisor, who directs site operations.
- A site safety-and-health supervisor, who develops and implements the site-specific safety-and-health plan.
- The personnel involved in hazardous-waste operations.
- The personnel who will respond to emergencies.

**What qualifications does one need to be a site Safety & Health Supervisor?** This person must have the authority and knowledge necessary to develop and implement the site-specific safety-and-health plan and to ensure that it complies with requirements.

## **Comprehensive Work Plan**

### **Purpose**

The comprehensive work plan defines your work objectives at the site, the employees' tasks, and the resources your employees need to accomplish the objectives.

### **Plan Elements**

The comprehensive work plan includes the following elements:

- Anticipated cleanup activities at the site.
- The personnel needed to accomplish the work objectives at the site.
- Training necessary for supervisors and other employees to accomplish their tasks.
- How you will inform employees about hazards they may encounter at the site.
- How you will implement medical surveillance for employees who work at the site.

## **Site Control**

### **Purpose**

Site control establishes procedures and safe practices to ensure that your employees will be protected from hazardous substances before they begin work on the site.

### **Procedures and Safe Practices**

Site-control procedures and safe practices include the following:

- A map of the site.
- Clearly identified work zones.
- Procedures for a buddy system.
- Procedures for warning employees about emergencies.
- Standard operating procedures needed at the site.
- The name of the nearest emergency-medical responder.

**This part of the Safety and Health Program requires a buddy system. What is a buddy system? Must both “buddies” work for the same employer?**

A buddy system pairs workers so they can help one another if an emergency occurs. Buddies do not have to work for the same employer, but they must be similarly equipped, appropriately trained, and must know their responsibilities.

## **Site Specific Safety and Health Plan**

### **Purpose**

This part of your written program identifies the hazards workers may encounter at the site and describes how you will protect them from those hazards. You need to explain the plan to employees before they begin work at the site.

### **Plan Elements**

The site-specific Safety and Health Plan contains the following elements:

- A hazard analysis for each task identified in the comprehensive work plan.
- Training assignments for those who need training before they begin work.
- The personal protective equipment employees need.
- Who will need medical surveillance.
- The frequency and types of monitoring.
- Methods for eliminating or controlling hazards.
- Decontamination procedures.
- Emergency-response procedures.
- Confined-space entry procedures.
- Spill-containment procedures.

## **Can one site-specific Safety and Health plan cover all employees who work at the site even if they are not employed by the same contractor?**

One site-specific plan is acceptable if it covers all tasks, operations, and employers on the site, and if the employees are trained to use the plan. However, each contractor or subcontractor at the site must comply with OSHA requirements.

### **Education and Training**

#### **Purpose**

Your employees need to know about the site hazards to which they may be exposed, how to recognize the hazards, and how to control their exposure. The best way for them to gain this knowledge is through education and training.

All employees who work at the site must have appropriate training before they begin their work.

#### **Training Elements**

Appropriate hazardous-waste-operations training addresses the following elements:

- The names of those responsible for the site-specific safety-and-health plan.
- Worksite hazards.
- How to use personal protective equipment.
- How to minimize exposure risks.
- How to use engineering controls and equipment.
- Medical-surveillance requirements.
- Decontamination procedures.
- Emergency-response procedures.
- Confined-space procedures.
- Spill-containment procedures.

## Training Requirements

Employees at higher risk of exposure need more training than those who do lower-risk tasks.

The following table summarizes their initial and refresher training requirements:

| Employee Category  | Initial Training  | Refresher Training                            |
|--|---|---|
| General on-site employees work regularly in areas that may have health or safety hazards). | <b>Forty</b> hours off-site instruction and <b>three</b> days of field experience.    | <b>Eight</b> hours annual refresher training. |
| Employees on site only occasionally to do a specific, limited task.                        | <b>Twenty-four</b> hours off-site instruction and <b>one</b> day of field experience. |   |
| Employees who work regularly on site in areas with no health or safety hazards.            |   |   |
| Supervisors of general on site employees.  | <b>Forty</b> hours off-site instruction and <b>three</b> days of field experience.    |   |

## Certification

Those who have successfully completed their training and field experience must receive a written certificate that says they have done so. They cannot begin hazardous-waste work without one.

**Does an occasional visitor to a site, such as a contractor surveying for placement of monitoring wells, need any of the above training?** Visitors who won't be exposed above permissible exposure limits or published exposure levels must have 24 hours of off-site training and one day of field experience.

**What does equivalent training mean?** Equivalent training means that an employee has previous experience or training that meets OSHA requirements. Employees with equivalent training who are new to a site must still receive appropriate site-specific training and have appropriate supervised field experience at the new site.

## Medical Surveillance

### Purpose

Medical surveillance consists of regular medical examinations and consultations for employees who may be overexposed to hazardous substances during their work. The purpose of examinations is to detect medical conditions that could harm employees as a result of their hazardous-waste-operations work.

## Who Needs Surveillance?

The following table shows which employees must have medical examinations and when the examinations are required:

| Employee Category  | When an Examination is Required  |
|--|--|
| Employees who may be exposed to hazardous substances at or above permissible exposure limits or published exposure levels for those substances 30 or more days a year. | <ul style="list-style-type: none"> <li>• Prior to assignment.</li> <li>• Annually; more frequently if recommended by a physician.</li> <li>• At termination of employment or reassignment.</li> <li>• Immediately after reporting symptoms indicating overexposure.</li> </ul> |
| Employees who wear a respirator for 30 or more days a year.  |  |
| Members of HAZMAT teams.   |  |
| Employees who show symptoms of overexposure to hazardous substances.   | <ul style="list-style-type: none"> <li>• As soon as possible after an employee reports symptoms.</li> <li>• When a physician determines that an examination is necessary.</li> </ul>   |

## About the Examination

Key points about the examination:

- The examination must be performed under the supervision of a licensed physician.
- The physician must have information about the employee's duties, exposure levels, and personal protective equipment.
- The employee must receive a copy of the physician's written findings.
- You must keep a record of the examination, including the employee's name and the physician's written opinion regarding the employee's medical fitness to do hazardous waste work or to wear a respirator.

## Hazard Control and PPE

### Purpose

Describes your policy for eliminating and controlling hazards — using engineering controls, work-practice controls, or personal protective equipment — at sites where your employees are involved in hazardous-waste operations.

### Hazard Controls

You can eliminate or control site hazards most effectively with engineering controls. Work-practice controls and personal protective equipment (PPE) are less effective. Your written Safety and Health Program should have a policy to eliminate and control hazards as follows:

- Use engineering controls and work-practice controls to keep employee exposure at or below permissible exposure limits.
- If engineering and work-practice controls aren't feasible, use a combination of engineering controls, work practices, and personal protective equipment to keep employee exposure at or below permissible exposure limits.
- Rotate employees to control their exposures only when there is no other way to keep the exposures at or below permissible exposure limits.

## About PPE

If you have employees who use personal protective equipment during hazardous-waste operations, you must have a policy that ensures the following:

- Equipment is selected to protect employees against site-specific hazards.
- Employees maintain and store equipment properly.
- Employees understand the equipment's limitations.
- Equipment is decontaminated and disposed of properly.
- Employees are trained to use, wear, and inspect equipment.
- Equipment fits employees who use it.
- Air and Personnel Monitoring

## Purpose

Monitoring helps you determine when and how to protect employees who may be exposed to hazardous substances during hazardous waste operations.

## When and How to Monitor

The table below summarizes when and how to monitor employees involved in hazardous waste operations:

| When to Monitor  | How to Monitor  |
|--|---|
| At initial entry.  | Monitor the air to identify any condition immediately dangerous to life and health (IDLH) or hazardous exposure levels. |
| When an employee suspects a hazardous condition or hazardous atmosphere. | Use personal sampling to monitor employees likely to have the highest exposures to hazardous substances.                |
| After the cleanup phase of a hazardous waste operation begins.           |   |

## **Informing Employees and Contractors**

### **Purpose**

This part of your written program informs employees and contractors about the site hazards they may be exposed to before they begin hazardous-waste work.

### **Requirement**

Your written program must ensure that employees, contractors, and subcontractors know about the nature of hazardous substances on the site and the levels to which they could be exposed.

## **Handling Hazardous Materials**

### **Purpose**

To minimize their risk of exposure, employees must handle hazardous materials appropriately. This part of your written program describes how employees will handle, transport, and dispose of hazardous materials.

### **Handling Drums and Containers**

Employees must observe the following safe practices:

- Use only containers that meet federal and state regulations for the waste they contain.
- Inspect containers for leaks or other signs of weakness before moving them.
- Consider containers that aren't labeled to contain hazardous materials.
- Store containers so that it is not necessary to move them frequently.
- Be aware of the hazards of moving drums and containers.
- Always use explosion-resistant equipment to handle containers in flammable atmospheres.
- Never stand on containers or use them as work platforms.

### **Controlling Spills**

Employees must know how to control container spills or leaks and must observe the following safe practices:

- Keep appropriate salvage containers and absorbents on hand.
- Do not move containers that show signs of weakness, bulging, or swelling.
- Do not handle containers that contain radioactive waste until the risks of exposure have been properly assessed.
- Have appropriate fire extinguishers available.

### **Opening Drums and Containers**

Employees who open hazardous-waste containers improperly can endanger themselves and others. Your written program must ensure that employees observe the following safe practices:

- Those not involved in opening hazardous-waste containers must be at a safe distance or be protected by a suitable shield.
- Keep sensitive equipment controls behind an explosion-resistant barrier.
- Use caution when opening containers with pressurized contents; open them from a remote location or use appropriate shielding.

### **Shock-Sensitive Waste**

Employees who handle shock-sensitive waste must observe the following safe practices:

- Keep nonessential persons away from the handling area.
- Use handling equipment that has explosion-resistant shields or barriers.
- Use an alarm to warn others before handling shock-sensitive materials.
- Maintain clear communication with everyone involved in handling the material.
- Permit only appropriately trained employees to open laboratory waste packs.
- Consider any container shock-sensitive if crystalline material has formed on its outside.

### **Do I have to label drums and containers to the extent required by the Hazard Communication Standard?**

- No. However, you must identify or organize them by chemical hazard or class so that employees will know what precautions to take before handling them.

### **If I remove earth that is covering underground gasoline or oil tanks, and I install tank liners, do I need to follow OSHA requirements?**

- If the tank is leaking, has leaked, or your work is part of a mandatory corrective action – yes.

### **I work on a Superfund site where drums have been dug up, repacked, numbered, and listed on a manifest. Do I need to put more specific labels on these drums?**

- The label information must tell employees how to safely handle them. Numbering them and listing them on a manifest is OK as long as the information includes the chemical hazard class.

## **Decontamination**

### **Purpose**

Employees who may be exposed to hazardous substances must know how to decontaminate themselves and decontaminate or dispose of contaminated equipment.

### **Employee Requirements**

Your written program must ensure that employees know how to decontaminate themselves before they enter a contaminated area and that they do the following:

- Avoid handling contaminated substances or equipment.
- Remove porous clothing wetted by a hazardous substance and shower immediately before leaving a contaminated area.
- Keep PPE in change rooms unless they are authorized to remove it.
- Follow decontamination procedures after leaving a contaminated area.

### **Other Safe Practices**

Your written program must ensure the following safe practices:

- Keep decontamination areas away from uncontaminated workers and equipment.
- Inform commercial laundries about the harmful effects of hazardous substances on contaminated clothing they receive from your employees.

### **Emergency Response**

#### **Purpose**

You cannot predict emergencies, but you can respond to them effectively if you plan for them. Your written program must include a plan that ensures employees know what to do when an emergency happens.

#### **Plan Elements**

Your emergency-response plan must address the following:

- Possible emergency situations at the site.
- Personnel roles, lines of authority, training, and communication procedures.
- Reporting to local, state, and federal agencies.
- Emergency-response equipment.
- Safe distances and places of refuge.
- Emergency zones, safe distances, and evacuation areas.
- Evacuation routes and procedures.
- Emergency decontamination procedures.
- Medical treatment and first-aid procedures.
- Emergency communication procedures.
- Emergency-response plan evaluation criteria.

#### **Making the Plan Work**

Do not just put your plan away and forget about it until an emergency occurs. Do the following to make it effective:

- Integrate the plan with the emergency-response plans of local, state, and federal agencies.
- Rehearse the plan's procedures regularly.
- Review the plan to keep it current.
- Install an alarm at the site that will notify employees of an emergency.

## How does an OSHA compliance officer evaluate a hazardous-waste operation's emergency-response plan?

The compliance officer ensures that the plan is in writing, verifies that it contains the above elements, and ensures that employees know about it and rehearse it regularly.

### Illumination

#### **Purpose**

This part of your written program ensures that employees have enough light to do their work safely.

#### **Illumination Intensities**

The table below shows the minimum illumination intensities in foot-candles for typical areas at hazardous-waste operations:

| Foot-candles (or lumens)  | Work Area   |
|---|---|
| 5   | General areas.  |
| 3   | Excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas. |
| 5   | Indoors.  |
| 5   | Tunnels, shafts, and general underground work areas.  |
| 10  | General shops.  |
| 30  | First-aid stations, infirmaries, and offices.   |
| <p><b><i>How much light is a foot-candle or lumen?</i></b> A foot-candle is equal to one lumen incident per square foot. The simplest definition is this one: A foot-candle is the illumination produced by one candle at a distance of one foot.</p> |   |

### Sanitation at Temporary Workplaces

#### **Purpose**

This part of your written program describes your policy for providing appropriate sanitary facilities for employees at temporary workplaces.

#### **Drinking Water**

Employees must have an adequate supply of drinking water. Non potable water outlets must clearly identify that the water is not to be used for drinking, washing, or cooking.

- Drinking water must be supplied from closed portable containers, equipped with taps.
- Drinking-water containers must be clearly labeled and not used for any other purpose.

- If you supply disposable cups, employees must take them from a sanitary container and dispose of them in a separate container.

### **Toilet Facilities**

Toilet facilities must be available for employees at the workplace. Hazardous waste sites that do not have sanitary sewers must have chemical, recirculating, combustion, or flush toilets. Doors to toilets must have locks that can be controlled from the inside.

### **Shower Facilities**

If employees do on-site hazardous-waste cleanup work for at least six months during which they may be exposed to hazardous substances, they must have shower facilities and change rooms.

- Showers must meet OSHA sanitation requirements.
- Change rooms must meet OSHA sanitation requirements.
- Showers and change rooms must be in areas with exposures below permissible exposure limits and published exposure levels.
- Employees must shower at the end of their work shifts or before they leave the site.

### **Evaluating New Technology**

#### **Purpose**

“New technology” refers to new products and equipment introduced by manufacturers to protect workers during hazardous-waste cleanup operations. Your written program should have a policy that directs employees to evaluate the benefits of new-technology products when they replace existing products or purchase new ones.

## Section II

For Employers Engaged in Operations at Treatment, Storage and Disposal Facilities.

### Contents

The Written Safety-and-Health Program for Operations at TSD Facilities:

- Site Evaluation
- Hazard Identification and Control
- Hazard Communication
- Medical Surveillance
- Material Handling
- Decontamination
- Education and Training
- Emergency response
- New technologies

### Written Safety and Health Program for Operations at TSD Facilities

#### About the Program

You must develop and implement a written safety-and-health program that will protect your employees involved in hazardous-waste operations. If you already have a written workplace safety-and-health program, you don't need to write a new one just for your hazardous-waste operations, as long as your existing program ensures that you and your employees accomplish the following:

- Identify, evaluate, and control safety and health hazards at your facilities.
- Respond promptly and appropriately to hazardous-waste operation emergencies.

#### Program elements

The table below shows the elements that your written safety-and-health program should include and describes why they are important. Use it as a guide to help you develop a new program or evaluate an existing one.

| Program Element                   | Purpose  |
|-----------------------------------|--|
| Site Evaluation                   | If your employees begin work at a new site, a qualified person must first evaluate the site to identify hazards and to determine how to control the hazards. |
| Hazard Identification and Control | Describes the engineering controls, work practices, and personal protective equipment needed to protect workers.   |
| Hazard Communication              | Ensures that employees are informed about the hazardous chemicals to which they may be exposed.  |
| Medical Surveillance              | Describes the purpose of medical examinations, their frequency, what the examinations include, and required information for the physician and the employee.  |
| Handling Hazardous Materials      | Describes appropriate methods for handling and transporting hazardous materials.   |
| Decontamination                   | Describes procedures for decontaminating employees exposed to hazardous substances.  |
| Education and Training            | Identifies who must be trained, training topics, frequency of training, and qualifications of trainers.  |
| Emergency Response                | Describes critical activities and specific plan elements for dealing with site-specific emergencies.   |
| New Technologies                  | Describes your policy for evaluating and adopting improved products for protecting employees involved in hazardous-waste clean-up operations.                |

## **Site Evaluation**

### **Purpose**

If your employees begin work at a site other than your facility, a qualified person must do a preliminary site evaluation to accomplish the following:

- Identify the specific hazards to which employees may be exposed.
- Determine what safety and health controls will protect employees from the hazards.

Soon after employees begin working at the site, a qualified person should do a detailed site evaluation.

### **Site Evaluation Elements**

A preliminary site evaluation should provide you with the following information:

- Site hazards including the physical or chemical properties of hazardous substances and how employees could be exposed to them.
- The risks to employees associated with exposure to hazardous substances.
- Where hazardous substances could leak or disburse.
- Site location, size, topography, and access routes.
- Employees' tasks and the time it will take them to complete the tasks.
- What personal protective equipment employees will wear.
- Capabilities of emergency responders, including their availability and response times.

### **Informing Employees**

You must inform employees about the chemical, physical, and toxicological properties of hazardous substances to which they may be exposed before they begin work at the site.

## **Hazard Identification and Control**

### **Purpose**

This part of your written program describes your policy for identifying worksite hazards and for eliminating or controlling them — using engineering controls, work-practice controls, or personal protective equipment.

### **Identifying Hazards**

There are many ways to identify hazards. For example, many small-business owners may only need to walk around their workplaces and look for them. However, because TSD facilities handle hazardous substances, you may need to do a comprehensive survey.

## Controlling Hazards

You can eliminate or control worksite hazards most effectively with engineering controls. Work-practice controls and personal protective equipment (PPE) are less effective. Your written safety-and-health program should have a policy to eliminate or control hazards as follows:

- Use engineering controls and work-practice controls to keep employee exposure at or below permissible exposure limits.
- If engineering and work-practice controls aren't feasible, use a combination of engineering controls, work practices and personal protective equipment to keep employee exposure at or below permissible exposure limits.
- Rotate employees to control their exposures only when there is no other way to keep exposures at or below permissible exposure limits.

## About PPE

If you have employees who use personal protective equipment during hazardous-waste operations, you must have a policy that ensures the following:

- Equipment is selected to protect employees against site-specific hazards.
- Employees maintain and store equipment properly.
- Employees understand the equipment's limitations.
- Equipment is decontaminated and disposed of properly.
- Employees are trained to use, wear, and inspect equipment.
- Equipment fits employees who use it.

## Hazard Communication

### Purpose

Your written program must have a policy that ensures employees know about worksite chemical hazards and how to protect themselves from those hazards. The policy does not apply to hazardous waste as defined by the Solid Waste Disposal Act and amended by the Resource Conservation and Recovery Act of 1976.

### Requirements

Your hazard communication policy must meet the requirements of the Hazard Communication Standard, which includes the following:

- **Hazard determination:** Identify and list all hazardous substances at the site, including hazardous substances to which employees may be exposed during their non-routine tasks and hazardous substances in unlabeled pipes.
- **Labeling:** Label on-site containers of hazardous chemicals with the chemical's name and a warning about its hazards.
- **SDSs:** A safety data sheet must cover each hazardous chemical used on site.
- **Employee training:** Inform and train employees who work with hazardous chemicals prior to their assignments and whenever their assignments or work processes change.

## Medical Surveillance

### **Purpose**

Medical surveillance consists of regular medical examinations and consultations for employees who may be overexposed to hazardous substances during their work. The purpose of the examinations is to detect medical conditions that could harm employees as a result of their hazardous-waste-operations work.

### **Who needs surveillance?**

The table below shows which employees must have medical examinations and when the examinations are required:

| <b>Employee Category</b>   | <b>When the Examination is Required</b>  |
|--|--|
| Employees who may be exposed to hazardous substances at or above permissible exposure limits or published exposure levels for those substances 30 or more days a year. | <ul style="list-style-type: none"> <li>• Prior to assignment.</li> <li>• Annually; more frequently if recommended by a physician.</li> <li>• At termination of employment or reassignment.</li> <li>• Immediately after reporting symptoms indicating overexposure.</li> </ul> |
| Employees who wear a respirator for 30 or more days a year.  |  |
| Members of HAZMAT teams.   |  |
| Employees who show symptoms of overexposure of hazardous substances.   | <ul style="list-style-type: none"> <li>• As soon as possible after an employee reports symptoms.</li> <li>• When a physician determines an examination is necessary.</li> </ul>  |

### **About the Medical Examination**

Key points about the examination:

- The examination must be performed under the supervision of a licensed physician.
- The physician must have information about the worker's duties, exposure levels, and personal protective equipment.
- The employee must receive a copy of the physician's written findings.
- You must keep a record of the examination, including the employee's name and the physician's written opinion regarding the employee's medical fitness to do hazardous waste work or to wear a respirator.

## Handling Hazardous Materials

### **Purpose**

To minimize their risk of exposure, employees must handle hazardous materials appropriately. This part of your written program describes how employees will handle, transport, and dispose of hazardous materials.

## Handling Drums and Containers

Employees must observe the following safe practices when they handle drums and containers:

- Use only containers that meet federal and state regulations for the waste they contain.
- Inspect containers for leaks or other signs of weakness before moving them.
- Assume unlabeled containers contain hazardous materials.
- Store containers so that it is not necessary to move them frequently.
- Be aware of the hazards of moving drums and containers.
- Always use explosion-resistant equipment to handle containers in flammable atmospheres.
- Never stand on containers or use them as work platforms.
- Keep appropriate salvage containers and absorbents on hand to control leaks.

## Material-Handling Equipment

Material-handling equipment used to move containers must be selected and operated to minimize igniting vapors released from those that may be damaged or ruptured. Observe the following safe practices to control leaks and spills:

- Keep appropriate salvage containers and absorbents on hand.
- Do not move containers that show signs of weakness, bulging, or swelling.
- Do not handle containers that contain radioactive waste until the risks of exposure have been properly assessed.
- Have appropriate fire extinguishers available.

## Shipping and Transporting Containers

Employees must observe the following safe practices when they ship and transport containers:

- Identify and classify containers before shipping them.
- Limit the number of container staging areas and make sure they are accessible.
- Put hazardous wastes in bulk containers only after determining it is safe to do so.

## Decontamination

### Purpose

Employees who may be exposed to hazardous substances must know how to decontaminate themselves and decontaminate or dispose of contaminated equipment.

### Employee Requirements

Your written program must ensure that employees know how to decontaminate themselves before they enter a contaminated area, and that they do the following:

- Avoid handling contaminated substances or equipment.
- Remove porous clothing wetted by a hazardous substance and shower immediately before leaving a contaminated area.
- Keep PPE in change rooms unless they are authorized to remove it.

- Follow decontamination procedures after leaving a contaminated area.

### Other Safe Practices

Your written program must ensure the following safe practices:

- Keep decontamination areas away from uncontaminated workers and equipment.
- Inform commercial laundries about the harmful effects of hazardous substances on contaminated clothing they receive from your employees.

### Education and Training

#### Purpose

Your employees need to know about the site hazards to which they may be exposed, how to recognize the hazards, and how to control their exposure. The best way for them to gain this knowledge is through education and training.

All employees who work on the site must have appropriate education and training before they begin their work.

#### Training Elements

Appropriate education and training addresses the following elements:

- How to identify and control worksite hazards.
- How to use personal protective equipment.
- How to minimize exposure risks.
- How to use engineering controls and equipment.
- Medical surveillance requirements.
- Decontamination procedures.
- Emergency-response procedures.

#### Training Requirements

The table below summarizes initial and refresher training requirements for new employees, current employees, and trainers:

| Employee Category | Initial Training   | Refresher Training           |
|-------------------|--|------------------------------|
| New Employees     | <i>Twenty-four</i> hours.  | <i>Eight</i> hours annually. |
| Current Employees | None required if previous work experience and training is equivalent to the twenty-four hours for new employees.         | <i>Eight</i> hours annually. |
| Trainers          | Satisfactory completion of a training course for subjects they are expected to teach and competent instructional skills. | None required.               |

#### What level of training is required for employees such as clerical staff who have offices near TSD operations?

Employees not engaged in hazardous-waste operations or emergency responses do not need the initial or refresher training listed above.

## **Emergency Response**

### **Purpose**

You cannot predict emergencies, but you can respond to them effectively if you plan for them. Your written program must include a plan that ensures employees know what to do when an emergency happens.

### **Plan Requirements**

The requirements for your emergency-response plan depend on whether employees will remain on the site during the emergency or if they will assist in responding to the emergency.

### **Required Plan Elements**

If your employees will remain on site during an emergency or if they assist in responding to the emergency, your emergency-response plan must address the following elements:

- Planning and coordinating with off-site responders.
- Personnel roles, lines of authority, and communication procedures.
- Emergency situations and how to prevent them.
- Safe distances and places of refuge.
- Site control and security.
- Evacuation routes and procedures.
- Emergency decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency communication procedures.
- Necessary emergency equipment, including PPE.
- Emergency-response plan evaluation criteria.

### **Training Requirements**

Emergency-response training must be certified in writing and cover the following topics:

- Elements of the emergency-response plan.
- Procedures for handling emergencies.
- Personal protective equipment necessary for emergencies.
- How to recognize hazards that may endanger responder's employees.

### **Who to Train**

You do not need to train every employee at the facility if you satisfy one of the following conditions:

- You have trained a smaller number of employees to control emergencies and all other employees know how to recognize emergencies, summon the trained responders, and evacuate the affected area.
- A trained off-site team will respond promptly to an emergency, and on-site employees know how to recognize emergencies and summon the responders.

### **Making the Plan Work**

Do not just put the plan away and forget about it until an emergency occurs; do the following:

- Inform responders about the site's topography and layout.
- Integrate the plan with the emergency-response plans of local, state, and federal agencies.
- Rehearse the plan's procedures regularly.
- Review the plan regularly and keep it current.
- Evaluate the plan's effectiveness after an incident and correct deficiencies.
- Install an alarm at the site that will notify employees of an emergency.

### **Is emergency-response training necessary for chemical facility employees who manufacture, use, store, or handle hazardous materials?**

Only if their activities could cause an emergency. Incidental releases of hazardous substances that employees can control quickly are not emergencies. However, these employees should have training covering the emergency-action plan, hazard communication, and respiratory protection.

### **How would an OSHA compliance officer evaluate a TSD facility's emergency-response plan?**

The compliance officer would verify that the plan is in writing, determine that it contains the required elements, and ensure that it is effectively communicated to employees and that employees rehearse it regularly.

### **New Technologies**

#### **Purpose**

"New technology" refers to new products and equipment introduced by manufacturers to protect workers during hazardous-waste cleanup operations. Your written program should have a policy that directs employees to evaluate new-technology products when they replace existing products or purchase new ones.

## Section III

For Employers Who Respond to Releases of Hazardous Substances at Any Site.

### Contents

The Written Emergency-response Plan.

- Elements of an Emergency-response Plan
- Incident-command System
- Training
- Medical Surveillance
- Chemical-protective Clothing

### The Written Emergency Response Plan

#### Purpose

Prompt, effective responses to emergency situations-uncontrolled releases of hazardous substances, for example-happen when they are based on carefully-crafted and well-rehearsed plans.

If you are an employer who takes action to control releases of hazardous substances, no matter where they occur, you must have a written emergency-response plan that applies the elements and practices described in this section.

If you are already using a local or state emergency-response plan, you do not need to create another one; however, it must address the elements and components below.

#### Plan Elements

Your emergency-response plan must address the following elements:

- Planning and coordinating with off- site responders.
- Personnel roles, lines of authority, and communication procedures.
- Emergency situations and how to prevent them.
- Safe distances and places of refuge.
- Site control and security.
- Evacuation routes and procedures.
- Emergency decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency communication procedures.
- Necessary emergency equipment, including PPE.
- Plan-evaluation criteria.

## **Critical Components**

In addition to the above elements, your plan must include safe-practice procedures that address the following:

| <b>Plan Component</b>              | <b>Purpose</b>  |
|------------------------------------|---|
| Incident Command System (ICS)      | The system for controlling and managing operations during an emergency.                           |
| Training                           | Identifies who needs training, types of training needed, and training hours required.             |
| Medical Surveillance               | Describes medical surveillance requirements for those who may be exposed to hazardous substances. |
| Chemical-Protective Clothing       | Describes requirements for using chemical-protective clothing.                                    |
| Post-Emergency-Response Operations | Describes requirements for removing hazardous substances after an emergency.                      |

### **How would an OSHA compliance officer evaluate my emergency-response plan?**

The compliance officer would verify that the plan is in writing and determine that it contains the required elements, and ensures that it is effectively communicated to employees and that they rehearse it regularly.

### **Do I have to plan for emergency responses to specific sites or incidents?**

If planning for emergencies at specific sites or for specific incidents will make your response more effective, then you should do so.

## **Incident Command System**

### **Purpose**

The Incident Command System is a set of procedures for controlling and managing operations during an emergency. One person — the individual in charge — coordinates all emergency- response activities through the incident command system.

### **Individual in Charge**

The senior emergency-response official responding to an emergency becomes the individual in charge. This person coordinates all emergency responders' activities through the incident command system and has the following responsibilities:

- Identifying hazardous substances or conditions at the site.
- Designating a safety officer to assist in identifying and evaluating hazards at the site.
- Enforcing incident command system procedures and ensuring that responders wear appropriate personal protective equipment.
- Determining when responders can remove positive-pressure self-contained breathing apparatus.
- Keeping others away except those actively performing emergency operations.
- Implementing appropriate decontamination procedures after emergency operations are finished.

## Training

### Purpose

Your emergency-response plan must ensure that those who will respond to an emergency are appropriately trained before they participate in an actual incident.

### Training Requirements

The table below summarizes the minimum training required for emergency responders:

| Responder Category                                       | Responder Tasks  | Minimum Training Required  |
|--|--|--|
| <b>Skilled Support Personnel</b>                         | Skilled equipment operators needed to perform emergency-support work.  | <ul style="list-style-type: none"> <li>Initial briefing covering hazards, PPE, and duties at the scene.</li> </ul>   |
| <b>Specialist Employees</b>                              | Provide technical assistance on specific hazardous substances.   | <ul style="list-style-type: none"> <li>Annual refresher training, or demonstrate competency in their specialty.</li> </ul>   |
| <b>LEVEL 1<br/>First responder,<br/>awareness level</b>  | Likely to witness or discover a hazardous substance release and initiate the emergency-response process.                             | <ul style="list-style-type: none"> <li>Training to identify emergencies and initiate the response process.</li> <li>Additional <b>LEVEL 1</b> competency.</li> <li>Annual refresher training.</li> </ul>   |
| <b>LEVEL 2<br/>First responder,<br/>operations level</b> | Responds to releases of hazardous substances; protects nearby persons, property, or the environment from the effects of the release. | <ul style="list-style-type: none"> <li><b>Eight</b> hours of training that includes <b>LEVEL 1</b> awareness training or the equivalent relevant experience.</li> <li>Additional <b>LEVEL 2</b> competencies.</li> <li>Annual refresher training.</li> </ul> |
| <b>LEVEL 3<br/>HAZMAT<br/>Technician</b>                 | Responds to releases of hazardous substances; attempts to stop the release.  | <ul style="list-style-type: none"> <li>Twenty-four hours of <b>LEVEL 2</b> training.</li> <li>Additional <b>LEVEL 3</b> competencies.</li> <li>Annual refresher training.</li> </ul>   |
| <b>LEVEL 4<br/>HAZMAT<br/>Specialist</b>                 | Supports the HAZMAT Technician.  | <ul style="list-style-type: none"> <li>Twenty-four hours of <b>LEVEL 3</b> training.</li> <li>Additional <b>LEVEL 4</b> competencies.</li> <li>Annual refresher training.</li> </ul>   |
| <b>On-scene Incident<br/>Commander</b>                   | Implements the incident command system and the emergency-response plan.  | <ul style="list-style-type: none"> <li>Twenty-four hours of <b>LEVEL 2</b> training.</li> <li>Additional on-scene incident commander competencies.</li> <li>Annual refresher training.</li> </ul>  |
| <b>Trainers</b>  | Instructs any of the above employees.  | <ul style="list-style-type: none"> <li>Satisfactory completion of courses in the subjects they will teach.</li> </ul>  |

## **Medical Surveillance**

### **Purpose**

Medical surveillance consists of regular medical examinations for employees who may be exposed to hazardous substances during their work. The purpose of the examinations is to detect medical conditions that could harm employees as a result of their hazardous-waste- operations work.

### **Who needs surveillance?**

The table below shows which employees must have medical examinations and when the examinations are required:

| <b>Employee Category</b>   | <b>When an Examination is Required</b>  |
|--|---|
| <b>HAZMAT Specialists</b>  | <ul style="list-style-type: none"> <li>• Prior to assignment.</li> <li>• Annually; more frequently if recommended by a physician.</li> <li>• Termination of employment or reassignment.</li> <li>• Immediately after reporting symptoms indicating overexposure.</li> </ul> |
| <b>Members of HAZMAT teams</b>   |   |
| <b>Employees who show symptoms of overexposure to hazardous substances</b> | <ul style="list-style-type: none"> <li>• As soon as possible after an employee reports symptoms.</li> <li>• When a physician determines an examination is necessary.</li> </ul>   |

### **About the Examination**

Key points about the examination: It must be performed under the supervision of a licensed physician. The physician must know about the worker's duties, exposure levels, and personal protective equipment.

- The employee must receive a copy of the physician's written findings.
- The employer must keep a record of the examination, including the employee's name and the physician's written opinion regarding the employee's medical fitness to do hazardous-waste work or to wear a respirator.

## **Chemical-Protective Clothing**

### **Purpose**

This part of your emergency-response plan ensures that employees will be protected from the chemical, physical, or biological hazards to which they may be exposed during emergency- response operations.

## Requirements

Chemical-protective clothing ranges from items such as gloves and face shields to totally encapsulating chemical-protective suits. If your employees use chemical-protective clothing, your emergency-response plan must ensure the following:

- The clothing is selected to protect employees against site-specific hazards.
- Employees maintain and store the equipment properly.
- Employees understand the equipment's limitations.
- The equipment is decontaminated or disposed of properly.
- Employees are trained to use, wear, and inspect the equipment.
- The equipment fits employees who use it.

## Chemical Protective Suits

Employees who may be exposed to substances that could cause immediate death, serious illness, or injury must wear totally encapsulating chemical-protective suits. The suits must provide the following level-A protection:

- Positive pressure, full-facepiece self-contained breathing apparatus (SCBA) or positive-pressure supplied-air respirator with escape SCBA approved by the National Institute for Occupational Safety and Health (NIOSH).
- Inner and outer chemically resistant gloves.
- Chemically resistant boots with steel toe and shank.
- Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally encapsulating suit).

## Post-Emergency Response Operations

### Purpose

This part of your emergency-response plan ensures the protection of responders who may be involved in cleanup operations involving hazardous substances after an emergency.

### Requirements

If your employees are involved in cleanup operations after responding to an emergency, you must have a written safety-and-health program that meets HAZWOPER requirements for employers engaged in hazardous waste cleanup operations.

### **When does an emergency-response incident become a post-emergency operation?**

As long as an emergency-response team controls a site and a hazard exists, there is an emergency. When the team declares the emergency-response activity finished, any remaining cleanup is a post-emergency operation.

### **If my employees are involved in cleanup operations after responding to an emergency, do I have to develop a plan that meets all of the requirements?**

Your plan need only address the requirements that apply to the cleanup work your employees do.

