

# Hazardous Materials and Terrorist Incident Response Training Guidelines

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# Hazardous Materials Response-Related Standards

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**Process Safety Management of Highly Hazardous Chemicals**

29 CFR 1910.119

## Introduction

There are important Occupational Safety and Health Act (OSHA) or Environmental Protection Agency (EPA) regulations that must be followed when responding to an incident involving hazardous materials. These include regulations which prescribe level of protective equipment, selection and use of respirators, training curriculum criteria, or procedures that must be followed during the response, stabilization, and recovery efforts. This section of the *Guidelines* contains an quick reference summary of these regulations.

Regulations and standards are often referred to as standard of care documents. While portions of existing regulations and standards may vary in application by individual State, Tribal, Territory and local policy, it should be remembered that these established procedures and guidelines are federal requirements that are considered by the emergency response profession in general as minimal and essential standards of care. Therefore it is important that employers, training program managers, and instructors be aware of and familiar with the provisions of these standard of care documents.

The following summaries of response related regulations are intended to provide a quick reference guide and overview of the provisions of each regulation. For the details of any regulation or standard covered in this summary it is necessary to review the entire section or document. Do not use this summary for compliance with the regulation, use the official document.

Summaries are provided in this section for the following regulations and standards of care:

- Hazardous Waste Operations and Emergency Response (HAZWOPER) 29 CFR 1910.120
- First Responder Operations Level Offensive Operations: OSHA Quips
- Employee Records 29 CFR 1910.20
- Personal Protective Equipment, including Eye and Face Protection 29 CFR 1910.133, Respiratory Protection 29 CFR 1910.134, Occupational Head Protection 29 CFR 1910.135, and Occupational Foot Protection 29 CFR 1910.136, Hand Protection 29 CFR 1910.138
- Confined Space Operations 29 CFR 1910.146
- Ventilation for Confined Space Operations
- Bloodborne Diseases 29 CFR 1910.1030
- Lockout / Tagout 29 CFR 1910.147
- Right-to-Know and Material Safety Data Sheets (MSDS) 29 CFR 1910.1200
- Joint Commission on Accreditation of Healthcare Organizations
- Process Safety Management of Highly Hazardous Chemicals 29 CFR 1910.119

# **HAZARDOUS WASTE OPERATIONS and EMERGENCY RESPONSE (HAZWOPER)**

**29 CFR 1910.120**

(Federal register Vol.54 No.42/ Monday March 6, 1989)

This document was published as final rule Monday March 6, 1989 and contains regulations pertaining to worker safety at several types of hazardous waste sites and emergency response operations without regard to the location of the site. The vast majority of public sector employees will be covered under the emergency response portion of the regulations. The purpose of this document is to provide the means to identify, evaluate, and control safety and health hazards, and provide a program for emergency response in hazardous waste operations. Due to the complexity of this material, it is recommended that you consult a safety professional or local OSHA office for further interpretation and application. Because of the breadth and overall importance of this document, two summaries are provided. The first is a summary of the requirements, for the general reader. The second is a summary of the sectional organization of the document, to assist readers wishing to subsequently reference or review specific sections of the regulation.

## **1. Summary of HAZWOPER Requirements**

### **General Requirements**

Written plan shall be made available to anyone on the site, as well as to federal authorities.

- All personnel on the site shall be informed of the hazards.
- Personal protective equipment shall be provided at no cost to the employees.
- A pre-designated representative of the company shall be appointed to become the incident commander. He/she will control the Incident Command System (ICS) in case of emergency.
- A written standard operating procedure (SOP) shall be developed for every purpose.
- A written hazardous communication program shall be implemented based on the information in Hazardous Communication Right-To-Know (RTK) section of this document.
- All excavations during site preparation shall be shored or sloped in a manner that will not allow accidental collapse.
- A post-emergency response plan that involves clean-up, follow-up, and start-up procedures shall be developed.

### **Written Safety and Health Program**

- Organizational Structure
  - show the specific chain of command
  - review and update as often as needed to reflect the current status

- Comprehensive Work Plan
  - address the specific tasks and objectives of the site operation
- Site Specific Safety and Health Plan
  - shall contain hazardous analysis specific to that site
  - shall include employee training on all hazards
  - personal protective equipment to be used
  - control measures to be used
  - frequency and types of monitoring
  - decontamination procedures
  - emergency response plan
  - confined space entry procedures (see *Confined Space* in this document)
  - spill containment plan and procedures shall be outlined
  - standard operating procedure (SOP) shall be outlined
  - medical surveillance plan requirements shall be outlined and include:
    - a written surveillance program
    - all physical exams of site workers
    - accurate records of medical surveillance
    - hazardous analysis and monitoring
    - on-site record keeping

### **Training**

- All personnel on the site shall be trained in hazardous waste operations before they participate in any activity that could expose them to hazardous substances, safety, or health hazards.
- Only authorized personnel shall be allowed on the site.
- Content of training:
  - names of persons responsible for site safety and health
  - safety, health, and other hazards present on the site
  - use of personal protective equipment
  - safe work practices
  - safe engineering practices
  - medical surveillance requirements
- General site workers, laborers, and supervisors shall have a minimum of 40 hours of off-site instruction and three days on-site training under the direct supervision of a trained, experienced supervisor.
- Workers on the site occasionally and workers regularly on site shall receive at least 24 hours of off-site instruction and one day of on-site training by a trained, experienced supervisor.
- Regular workers required to wear respirators shall undergo an additional 16 hours of off-site instruction and two days of on-site training by a trained, experienced supervisor.
- Management and supervisors shall attend at least 40 hours of off-site instruction and three days of field supervised training and an additional 8 hours of specialized training on topics such as personal protective equipment, employee training, spill containment, and monitoring techniques.
- Trainers shall be qualified to instruct employees and have completed a trainer's course and attained certification as a trainer from that course.
- Each certified worker shall undergo an additional 8 hours refresher training course annually.

**Record Keeping**

- Written programs and documentation:
  - Organizational Structure
  - Work Plan
  - Standard Operating Procedures (SOP's)
  - Medical Surveillance Program
  - Decontamination Program
  - Emergency Response Plan
  - Safety and Health Program
  - Hazardous Communication Program
  - Training Program
  - Post Emergency Response Plan

**2. Summary of HAZWOPER by Sections**

**(a) Scope, application, and definitions pg 9317**

1. Scope - This section covers the following operations, unless the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards.

- (i) Clean-up required by a government
- (ii) Work at RCRA sites
- (iii) Voluntary clean-up at sites recognized by a government
- (iv) Work at treatment, storage, and disposal sites
- (v) Emergency response operations

2. Application - Defines who regulations apply to

- (i) All applicable 1910 and 1926 regulations of Title 29 apply to hazardous waste and emergency response
- (ii) Hazardous substance clean-up operations must comply
- (iii) Operations at sites listed in 1 (iv)
- (iv) Emergency response operations which are not listed in 1 (I) through 1 (iv) must only comply with the requirements of paragraph (q)

3. Definitions

- Buddy system - groups of 2 or more to provide rapid response to employees in the event of an emergency
- Clean-up operation - work removing hazardous substances
- Decontamination - removal of hazardous substance to preclude adverse effects
- Emergency response or responding to emergencies - response effort from outside the immediate release area or by other designated responders (i.e. mutual aid groups, local fire departments, etc.)
- Facility - any building, structure, pipeline, etc.
- Hazardous materials response (HAZMAT) team - means an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring the possible close approach to the substance for the purpose of control or stabilization of the incident. A HAZMAT team may be a separate component of a fire brigade or fire department
- Health hazard - a chemical, mixture of chemicals, or a pathogen that acute or chronic exposure may occur
- IDLH - immediately dangerous to life or health which may cause irreversible health effects
- Oxygen deficiency - atmosphere with less than 19.5% oxygen

**(b) Safety and Health Program pg 9318**

- (1) General - required for hazardous waste operations and contains 7 specific areas of planning

- (2) Organizational structure part of site program - describes lines of authority
- (3) Comprehensive workplan of the site program - addresses logistics and resources
- (4) Site-specific safety and health plan part of program - addresses hazards

**(c) Site characteristics and analysis pg 9319**

- (1) General - evaluation used to identify specific hazards
- (2) Preliminary evaluation - performed prior to entry
- (3) Hazard identification - identify hazards to health by inhalation, absorption, etc.
- (4) Required information - gathered prior to employees entering site
- (5) Personal protective equipment - includes chemical exposure protection and respiratory protection
- (6) Monitoring - using instruments to evaluate health hazards
- (7) Risk identification - once hazard is identified evaluate risks involved
- (8) Employee notification - all known chemicals and hazards must be explained to employees

**(d) Site control pg 9320**

- (1) General - appropriate site control measures shall be taken
- (2) Site control program - program to protect employees must be developed
- (3) Elements of a site control program - items such as site map, buddy system. etc.

**(e) Training (this does not apply to emergency responders) pg 9320**

- (1) General - all employees, supervisors, etc. working on site shall be trained
- (2) Elements to be covered - names, hazards, PPE, work practices, engineering controls, and medical surveillance
- (3) Initial training
  - General site workers must receive 40 hours training off site and a minimum of 3 days field experience .
  - Workers on site occasionally - must receive 24 hours training off site and 1 day field experience
  - Workers on site in areas where exposures are under permissible limits - must receive 24 hours training off site and 1 day field experience
  - Workers with 24 hours of training who may become general site workers must receive 16 additional hours of training and 2 days of field experience
- (4) Management supervisor training - on-site management who supervise employees engaged in hazardous waste operations shall receive 40 hours of training and 3 days field experience
- (5) Qualifications of trainers - satisfactorily completed training and be an instructor
- (6) Training certification - a certificate shall be issued upon completion of training
- (7) Emergency response - Those who may respond at a hazardous waste clean-up site and may expose themselves to hazardous substances shall be trained
- (8) Refresher training - requires annual refresher training
- (9) Equivalent training -documentation of employee's work experience/training

**(f) Medical surveillance (Pertains to Haz Mat Teams) pg 9321**

- (1) General - Covers hazardous waste/clean up workers and paragraph (q)(9) members of a hazmat team and hazardous materials specialist
- (2) Employees covered - Includes employees who are exposed to hazardous substances or health hazards at or above the permissible levels, those who wear a respirator for 30 days or more a year, all employees injured due to over exposure from an emergency involving a hazardous substance, and members of a hazmat team
- (3) Frequency of medical examinations and consultations/ includes hazmat teams - prior to assignment, every 12 months unless physician states longer (no longer than biennially), at termination of employment or reassignment, as soon as possible upon notification that employee has developed signs or symptoms indicating possible over exposure to hazardous substance or health hazards, or that employee was injured or exposed above the permissible exposure limits/levels or at more frequent times if physician determines necessary.
- (4) Content of medical examinations and consultations - Work or job related items
- (5) Examination by a physician and cost - licensed physician at no cost to employee
- (6) Information provided to physician - employer shall provide appropriate job related information, a copy of 29 CFR 1910.120, description of PPE the employee will use, and information from previous medical examinations

- exam
- (7) Physicians written opinion - Shall provide information to employer and employee regarding findings of and tests
  - (8) Record keeping - Records of medical surveillance examinations, physicians opinions, medical complaints, and other information

**(g) Engineering controls, work practices, and personal protective equipment for employee protection**

*pg 9322*

- (1) Engineering controls, work practices, and PPE for substances regulated in Subparts G & Z
- (2) Engineering controls, work practices, and PPE for substances not regulated in Subparts G & Z
- (3) Personal protective equipment - Describes all aspects of PPE
- (4) Totally encapsulating chemical protective suits - Describes chemical protective clothing
- (5) Personal protective equipment (PPE) program - Need for written program describing all aspects of clothing selection and use

**(h) Monitoring *pg 9323***

- (1) General - Describes general concepts of where and how monitoring is applied
- (2) Initial entry - Air monitored upon entry to identify any IDLH or flammable condition
- (3) Periodic monitoring - Shall be conducted when the possibility of an IDLH or flammable atmosphere has developed and at other times
- (4) Monitoring high-risk employees - After clean-up phase

**(i) Informational programs required by employer at certain sites *pg 9323***

**(j) Handling drums and containers *pg 9323***

- (1) General - Handling, transportation, labeled, and disposal
- (2) Opening drums and containers - Procedures for opening containers, protective equipment, safety precautions, and others
- (3) Material handling equipment - Selection of proper equipment
- (4) Radioactive waste - special precautions for this type material
- (5) Shock sensitive wastes - Special precautions for these materials
- (6) Laboratory waste protocols - Special precautions for laboratory waste
- (7) Sampling drum and container contents - Done in accordance with site safety plan
- (8) Shipping and transport - procedures to store and ship these containers
- (9) Tank and vault procedures - Procedures similar to drums and containers

**(k) Decontamination *pg 9325***

- (1) General - Procedures shall be developed and followed
- (2) Decontamination procedures - Procedures shall be developed, communicated to staff, and implemented before any employee or equipment may enter site
- (3) Location - Done in an area to minimize exposure
- (4) Equipment and solvents - Shall be properly disposed of
- (5) Personal protective equipment - Shall be decontaminated, cleaned, laundered, maintained or replaced as needed
- (6) Unauthorized employees - Shall not remove clothing from change rooms
- (7) Commercial laundries or cleaning establishments - shall be informed of potentially harmful effects of exposure
- (8) Showers and change rooms - When a shower is needed for decontamination special procedures special procedures are needed and must meet the requirements of 29 CFR 1910.141

**(l) Emergency response by employees at uncontrolled hazardous waste sites *pg 9325***

- (1) Emergency response plan - Shall be developed and implemented by employer
- (2) Elements of the emergency response plan - Describes 11 minimum elements
- (3) Procedures for handling emergency incidents - Includes features of site, and seven operational procedures to be followed

**(m) Illumination - Provides guidelines for amount of light to be provided *pg 9325***

**(n) Sanitation at temporary work place *pg 9325***

- (1) Potable water - Such as for drinking
- (2) Nonpotable water - Such as for firefighting purposes

- (3) Toilet facilities - Describes number and types
- (4) Food handling - Shall meet applicable regulations of local jurisdiction
- (5) Temporary sleeping quarters - Heated, ventilated, etc.
- (6) Washing facilities - In near proximity to work site
- (7) Showers and change rooms - Provisions for facilities

**(o) New technology programs pg 9326**

- (1) Employer shall develop and implement procedures for new technologies and equipment
- (2) New technologies - Such as foam, absorbents, adsorbents, etc. shall be evaluated

**(p) Certain operations conducted under RCRA of 1976 pg 9326**

- (1) Safety and health program - Develop and implement written plan
- (2) Hazard communication program - Must meet 29 CFR 1910.1200
- (3) Medical surveillance program
- (4) Decontamination program
- (5) New technology program
- (6) Materials handling program
- (7) Training program
- (8) Emergency response program

**(q) Emergency response to hazardous substance releases pg 9328**

This paragraph covers employers whose employees are engaged in emergency response no matter where it occurs

- (1) Emergency response plan - Shall be developed in writing and implemented to handle anticipated emergencies
- (2) Elements of an emergency response plan - As a minimum the plan shall address 11 elements which range from pre-emergency plans to equipment
- (3) Procedures for handling emergency response - Includes 10 operational procedures including the need for an incident commander and site safety officer
- (4) Skilled support personnel - Includes operational procedures for personnel (not necessarily the employer's own) for such functions as equipment operators of cranes, or earth moving
- (5) Specialist employees - Include employee who as part of their job have with special knowledge, skill or ability which includes training an competency demonstration
- (6) Training - Includes five levels of response training  
Note: Employer should read the job descriptions of these five levels to determine which best describes the type or level of activity their employees will participate in. This will determine the level of the employers emergency response plan and level of training required. See pg 9329
  - (i) First responder awareness - no set hour requirement, has 6 competency skill areas
  - (ii) First responder operations - Shall receive a minimum of 8 hours of training which include the 6 competency areas of First Responder Awareness as well as the 6 competencies specifically for this level
  - (iii) Hazardous materials technician - Shall receive 24 hours of training in 9 competency areas plus those required in items (ii) and (iii).
  - (iv) Hazardous materials specialist - Shall be trained to the level of technician in addition to 9 additional competencies.
  - (v) On scene incident commander - Assumes command of an incident beyond the awareness level, has 24 hours of training equal to the first responder operations level plus 6 additional competencies
- (7) Trainers - Shall have completed a training course for the subjects they are expected to teach along with instructional experience
- (8) Refresher training - Those employees trained under (q)(6) shall receive annual refresher training or demonstrate competencies
- (9) Medical surveillance - Members of a HAZMAT team and hazardous materials specialist shall receive a baseline physical exam (see paragraph (f)) and any emergency response personnel who exhibits signs or symptoms associated with a hazardous materials exposure shall be provided with medical consultation (see paragraph f (3)(ii))
- (10) Chemical protective clothing - Clothing and equipment by HAZMAT team members shall meet requirements of (g)(3) - (g)(5)
- (11) Post-emergency response operations - Upon completion of emergency response specific conditions for removal of contaminated material and clean-up must be followed

Appendix A - Personal protective equipment test methods *pg 9330*

- A. Totally-encapsulating chemical protective suit pressure test procedures
- B. Totally-encapsulating chemical protective suit qualitative test procedures

Appendix B - General description and discussion of the levels of protection and protective gear *pg 9332*

Part A - Personal protective equipment is divided into four categories based on the degree of protection afforded (levels A,B,C,D)

Part B - Types of hazards for which levels A,B,C,D protection are appropriate

Appendix C - Compliance guidelines *pg 9333*

- 1. Occupational safety and health program is discussed
- 2. Training (emergency response *pg 9334*, middle column, second paragraph)
- 3. Decontamination procedures are outlined
- 4. Emergency response plans (Hazardous Materials Emergency Response Planning Guide - NRT 1 is helpful)
- 5. Personal protective equipment programs is reviewed
- 6. Incident command system (ICS) is discussed
- 7. Site safety and control plans are important to the incident commander

Appendix D - References *pg 9335*

Amendments to original document of March 6, 1989  
(Federal Register Vol. 59 No. 161/ Monday August 23, 1994)

Appendix B - Last two paragraphs were revised which describes chemical protective clothing

Appendix E - Training curriculum guidelines *pg 43270*

It is noted that the legal requirements are set forth in the regulatory text of 1910.120. The guidance set forth here represents a highly effective program that in the areas covered would meet or exceed the regulatory requirements. In addition, other approaches could meet the regulatory requirements.

Suggested core criteria: *pg 43270*

- 1. Training facility - Sufficient resources to conduct training
- 2. Training director - Person in charge
- 3. Instructors - Criteria for staff including instructional review procedures
- 4. Course materials - Reviewed and approved by training director
- 5. Students - Includes screening procedures
- 6. Ratios - Recommends student-instructor ratio
- 7. Proficiency assessment - Includes testing procedures
- 8. Course certificate - Written documentation of completion of course
- 9. Record keeping - Describes record keeping procedures
- 10. Program quality control - Annual audit of program quality

Suggested program quality control criteria: *pg 43271*

- A. Training plan - Is it adequate and appropriate
- B. Program management, training, director, staff, consultants - Is the program adequate and are staff effective
- C. Training facilities and resources - Is it adequate and appropriate
- D. Quality control and evaluation - Quality control and evaluation plans
- E. Students - Adequate procedure for accepting students
- F. Institutional environment and administrative support - Enough help
- G. Summary/evaluation questions - Overall program evaluation procedures

Suggested training curriculum: *pg 43272*

- A. General hazardous waste operations and site-specific training
  - 1. Off-site training - Hazardous waste operations
  - 2. Refresher training - Criteria for annual refresher
  - 3. On-site training - Specific site training/information
- B. RCRA Operations training for treatment, storage, and disposal (note: See appendix for additional information about TSD operations)
  - 1. Minimum training requirements
  - 2. Provide training prior to entering site
- C. Emergency response training - 1910.120 (q) - may be appropriate for public sector emergency response personnel
  - a. General considerations - May require interaction between emergency responder and site operators
    - (1) First responder awareness
    - (2) First Responder operations
    - (3) Hazardous materials technician
    - (4) Hazardous materials specialist
    - (5) Incident commander

## **First Responder Operations Level Offensive Operations: OSHA Quips**

First Responders that are trained in emergency response under the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation 29 CFR 1910.120q are generally trained to the First Responder Awareness and First Responder Operations levels, but are not generally trained to the Technician level. As a result, First Responders are limited to engaging in only defensive operations and are legally prevented from approaching the release to plug, patch or otherwise stop the release.

For decades first responders such as firefighters and public works personnel routinely plugged leaks in containers such as automobile fuel tanks, truck saddle tanks, and leaks in residential natural gas lines. However, the HAZWOPER regulation precluded first responders from continuing to perform these tasks.

To facilitate the ability to engage in this type of offensive work many agencies have written standard operating procedures (SOP) that provide guidelines for conducting these procedures. They submit the SOP to the Occupational Safety and Health Administration (OSHA) that has jurisdiction and, in most cases, find that OSHA will approve the SOP. Once the SOP is approved by OSHA, the actions are considered acceptable by operations level personnel as long as the scope of the SOP is not violated.

For jurisdictions that desire to have their operations level personnel engage in offensive operations they need to:

- A. Develop a separate Standard Operating Procedure for each offensive operation, such as plugging vehicle fuel tank leaks, plugging saddle tank leaks, plugging natural gas line leaks. The content of each SOP should be, at a minimum:
1. The title of the SOP
  2. The scope of the SOP
  3. The PPE required for conducting the offensive operation.
  4. The actual procedure to be followed when engaging in the offensive operation
  5. The training required prior to allowing personnel to engage in the offensive operation, with emphasis on the proper PPE and NOT exceeding the scope of the SOP
- B. Submit the SOP to your OSHA representative for approval
- C. Following approval of the SOP by your OSHA representative, train your personnel as defined in the SOP
- D. Don't allow your trained personnel, in actual field operations, to exceed the scope as defined in the SOP

By addressing these simple steps, the capabilities of your first responder operations level personnel can be greatly enhanced and your dependence on Technician level personnel will be reduced for these routine type of incidents.

### **OSHA Quips**

The following question/answer (Quips) interpretations of OSHA 1910.120 have been issued related to the subject of Operations Level offensive operations.

#### **Operations Level Firefighters. 29 CFR 1910.120(q)(6)(ii)**

*May an emergency responder trained only at the operations level under paragraph (q)(6)(ii) of the standard perform aggressive or offensive actions at an emergency involving a small spill or leak of gasoline without the employer being in violation of the Standard? Typical actions would include plugging or patching a leaking automobile gas tank.*

Operations level training by itself is designed to enable emergency responders to safely perform defensive action at a safe distance from the point of release; personnel who have not been trained beyond the operations level are not considered adequately trained to take aggressive action at the point of release and are not permitted to do so. Such action would be in violation of 29 CFR 1910.120(q)(6)(iii), which defines the training requirements for personnel designated to take aggressive action (i.e., hazmat techs).

However, "a small spill or leak of gasoline" would not necessarily constitute an emergency or potential emergency covered under the HAZWOPER standard. Firefighters with or without operations level training may be permitted to handle non-emergency releases of an identified hazardous substance which they are adequately trained and equipped to control. Where an emergency or potential emergency release has

occurred, personnel who have not been trained beyond the operations level may perform defensive action, only, deferring aggressive action to more highly trained personnel.

**De Minimis Training Policy for Firefighters.**

**29 CFR 1910.120(q)(6)(iii)**

29 CFR 1910.120 is a performance based regulation, providing some flexibility to the employer in meeting the requirements of the regulation. With regard to training, paragraph (q)(6) states “ training shall be based on the duties and function to be performed by each responder;” all employees must be adequately trained to perform their assigned job duties without danger to themselves or others.

Hazardous materials technician (hazmat tech) training is necessary for emergency responders who take aggressive action in a potentially dangerous area to stop the release. OSHA may, in appropriate circumstances, consider violations of hazmat tech training to be “de minimis,” however, when they do not impact on the ability of responders to safely perform their assigned job duties. The burden would be on the employer to demonstrate to OSHA that the violation did not pose a hazard to the safety or health of employees and that the violation was in fact de minimis in nature.

Therefore, in certain limited circumstances, personnel who do not meet all of the training requirements for the hazmat tech level, but who have training beyond the first responder operations level, would be considered by OSHA to be adequately trained to perform a specific task not otherwise permitted for operations level personnel.

The September 20, 1991 letter addressed to Ron Runge to which you refer was intended to apply only to firefighters. OSHA considers properly trained firefighters to already have extensive training and experience in handling gasoline or other fuel incidents by nature of their regular job duties. However, where the identity of the hazardous substance involved in an uncontrolled release cannot be determined, or where the hazardous substance is one for which firefighters have not received specific training or do not have adequate control equipment, aggressive action should be deferred to a fully trained HAZMAT team. Further, response by a fully trained HAZMAT team may be necessary whenever there are factors which may complicate response efforts.

Consideration for the de minimis policy for 29 CFR 1910.120(q)(6)(iii) is generally limited to small scale emergency involving limited quantities of a known hazardous substance which firefighters are adequately trained and equipped to handle.

**Roles and Duties, Hazard Assessment, and Firefighters.**

**29 CFR 1910.120(q)(2)(ii) and (q)(6)(iii)**

You can that the HAZMAT team in one of your urban counties has adopted the policy that gasoline spills of 25 gallons or less do not require response by a HAZMAT team, and can be safely handled by firefighters with “operations plus” training.

OSHA has no authority to determine how State and local authorities divide responsibilities between their fire departments and HAZMAT teams, and express no view on that issue. However, if fire department

members with inadequate HAZWOPER training took aggressive action to respond to a hazardous substance emergency, a violation of 29 CFR 1910.120(q)(6)(iii) would exist; this would not be the case if the fully trained and equipped HAZMAT team were to respond. OSHA does acknowledge that in many cases firefighters may have the capabilities to safely respond to spills where fewer than 25 gallons of gasoline are involved without full hazmat tech training provided they have extensive training in the safe handling of gasoline.

However, the hazard assessment of which incidents can be safely handled by responders without full hazmat tech training cannot be based on quantity alone. Ambient conditions and specific hazards at the scene must be included in the hazard assessment. Which incidents can be safely handled by responders who do not meet all of the competencies required for hazmat tech level would depend also on the extent and content of the additional training beyond the operations level which they had received.

Employers must establish in their written emergency response plan, required in paragraph (q)(2)(ii), guidelines for determining in which scenarios aggressive action should be deferred to the fully trained HAZMAT team. Personnel who will be expected to take aggressive action, but who have not been assigned the full duties of the hazmat tech level, should as part of their training be instructed in these guidelines to enable them to determine which scenarios are beyond their ability to handle safely.

#### **Firefighters Responding to Propane and Gasoline Fires. 29 CFR 1910.120(q)(6)(ii) and (iii)**

Firefighters trained to the operations level, who are also trained in the hazards of propane, may enter the danger area to shut off the valves that will starve the fire and thus extinguish it. Normally, employees trained to the operations level would be restricted from taking aggressive action. This is considered to be a special case. The principle hazards from propane are fire and explosion, not toxicity. Because propane fires are common, most firefighters are fully trained and equipped to respond to propane fires, including taking aggressive action by shutting off the valves in the danger area.

If firefighters are fully trained and equipped (which is a high degree of training), and have also received first responder operations level training, OSHA believes they have sufficient training to take aggressive action due to propane's relatively low toxicity.

It would be only a technical violation of 29 CFR 1910.120(q)(6) for not having the additional training required of a HAZMAT technician if a firefighter took aggressive action in the danger area during a propane fire or leak, was fully trained and equipped to handle the fire and had first responder operations level training. In this circumstance OSHA would not issue a citation.

Releases of gasoline similar to the example involving propane discussed above may be addressed by operations level emergency responders if they have the required PPE, emergency response equipment, and specific training in the safety and health hazards associated with gasoline.

Employers who expect firefighters to shut off a gasoline valve in the danger area, and who can show that employees are trained to the operations level and adequately trained in the hazards of gasoline, have committed a technical violation of 1910.120 (q)(6)(iii) for such employees not having the training required of a HAZMAT technician.

NOTE: The fire and explosion hazards of propane and gasoline are very substantial. The interpretations herein are applicable only when firefighters are fully trained and equipped to handle the explosion and fire hazards of propane, gasoline, or similar gases and liquids.

**Firefighters Taking Aggressive Action and Technical Violations**  
**29 CFR 1910.120(q)(6)(iii)**

It would be only a technical violation of 29 CFR 1910.120(q)(6) for not having the additional training required of a HAZMAT technician if a firefighter took aggressive action in the danger area during a propane fire or leak, was fully trained and equipped to handle the fire and had first responder operations level training. In this circumstance OSHA would not issue a citation.

If an injury occurred during an emergency response involving these responders (operations level plus additional training) the CSHO would need to consider whether the responders' training and experience were sufficient for the tasks being performed.

A violation of training requirements that resulted in an actual injury to an employee during an emergency response by definition cannot be a "technical violation." Thus, if an injury occurred and the CSHO determined that the responders' training and experience were not sufficient for the tasks being performed, then a citation should be issued noting a violation of 29 CFR 1910.120(q)(6)(iii) and carrying a penalty that requires abatement. Whether abatement should require full training in all of the competencies of the HAZMAT technician level, or whether certain training requirements could safely be omitted, would depend on the training needed to safely perform the tasks in question.

If, however, the CSHO determined that the training which had been provided to the employees in question had been provided to the employees in question had been adequate, then the training violation would be considered a de minimis violation and no citation would be issued for inadequate training. In this situation the CSHO might determine that the cause of the injury was due to a violation of some other requirement of 29 CFR 1910.120 or other standards, for which a citation carrying a fine and requiring abatement would be appropriate.

## EMPLOYEE RECORDS

### 29 CFR 1910.20

The purpose of this section is to give general guidelines concerning the retention of and employee access to medical and exposure records. It is always advisable to make copies rather than loan out documents. If the request for documents is of a serious nature, seek legal counsel.

Current employees, former employees, employees being transferred to a new location, and their representatives have the right to review and receive a copy of any record mentioned below which is *relevant to that employee*.

#### **Medical Records**

- Audio Testing
- Chest X-Ray (*These must be available for review, but they do not have to be loaned or copied*)
- Descriptions of Treatments
- Employee Medical Complaints
- First Aid Log
- Post-Employment Physical
- Pre-Employment Physical
- Previous Employment Medical Tests
- Respiratory Fit Testing (*A test to determine which size respirator to wear and to test its fit*)

#### **Exposure Records**

- Air monitoring records
- Copy of 29 CFR 1910.20, access to employee exposure and medical records
- Employee medical access training records (*The documentation that informs employees of their right to access exposure and medical records*)
- Measures for controlling worker exposure to chemicals (*Personal protective equipment, ventilation, material handling procedures, etc.*)
- Methodologies used to gather data (*Types of monitoring devices used, procedures, areas included, and substances monitored such as vapors, fumes, gases, or dusts*)
- Noise monitoring records
- Records by the Assistant Secretary of Labor for Occupied Safety and Health

- Record of OSHA 200 Log (*A list of occupational injuries, illnesses, and deaths suffered by employees, which is required by OSHA for all companies employing 10 or more employees*)

### **Records Not Required to be Released**

- Drug testing results
- Health insurance claims (*If it is kept in a file other than the employee's medical file, you do not have to release this information*)
- Medical records prepared for litigation
- Records by the Assistant Secretary of Labor for Occupational Safety and Health
- Voluntary Employee Assistance Programs (EAP) (*Drug and alcohol programs, family/personal counseling*)

### **Employee Requirements to Obtain Medical Records**

Employee and representatives may obtain medical records according to the following conditions:

- The request is in writing and contains the following:
  - company name
  - date authorization will expire, if applicable
  - date of request
  - description of medical information requested
  - employee name
  - employee representative name, if applicable
  - employee signature
  - purpose for request
- If authorization is revoked, it shall be in writing.

### **Employer Rights and Responsibilities**

- The employer can only require employee to answer questions that aid in location of information. (*i.e., dates, locations where employee worked during time in question*)
- Employer shall not charge for the first copy or any additional information at another time.
- Employer may charge a reasonable price for a second copy of the same information received earlier.
- If a copy machine is not available, the documents may be loaned for a reasonable time to have copies made. (*It is best to have office personnel make a copy to avoid the possibility of loss.*)
- Medical records shall be kept on file for 30 years after an employee's termination.
- Names and identifiers of other employees shall be deleted.
- The information requested shall be released within 15 working days. If this is not possible, an explanation must be given to employee and a date of expected compliance.
- X-rays may be loaned at employer discretion, but viewing in house is sufficient and preferred.

### **Training**

Employees first entering work shall be informed annually of the following:

- the existence, location, type of records, and person to contact to retrieve information
- the procedure for accessing records in writing
- their right to access medical records

### **Transfer or Disposal of Medical Records**

- If a business is sold, the successor shall maintain the previous owner's records.
- If a business is closing, current employees shall be notified at least three (3) months prior to closing that they have a right to receive their records.
- OSHA shall be notified three months in advance of closing that you intend to dispose of medical and exposure records.

### **Record Keeping**

Employers shall retain the following records for duration of employment plus 30 years:

- Analysis using Exposure Records
- Exposure Records
- Material Safety Data Sheets
- Medical Records  
*(Time begins after employee termination)*

## PERSONAL PROTECTIVE EQUIPMENT

The purpose of this section is to outline general requirements for respirators, eye, head, foot, and fall protection. Personal protective equipment (PPE) is not always the best method for controlling hazards. However, it can be the fastest and most economical method of protecting employees from known hazards.

### **29 CFR 1910.132      General Requirements**

- (a) Protective equipment shall be provided, used, and maintained to protect employees
- (b) Where employees provide their own protective equipment, employer must assure its adequacy
- (c) All personal protective equipment must be of safe design and construction
- (d) Hazard Assessment and Equipment Selection
  - (1) Employer shall assess the workplace to determine if hazards are present, or are likely to be, which necessitate PPE
  - (2) if so, employer shall: select and require use of appropriate PPE; communicate selection decisions to employees; select PPE that
  - (3) Written certification of hazard assessment required
- (e) Defective or damaged personal protective equipment shall not be used
- (f) Employers shall provide training to all employees required to use PPE
  - (1) PPE training must cover: when PPE is necessary; what PPE is necessary; how to don, doff, adjust and wear PPE; limitations of PPE; proper care, maintenance, useful life and disposal
  - (2) Employees must demonstrate an understanding of training topics and ability to use PPE
  - (3) Retraining may be required
  - (4) Written certification of training required

### **29 CFR 1910.133      Eye and face protection**

- (a) General provisions
  - (1) Protective eye and face equipment shall be required when there is a reasonable probability of injury than can be prevented by such equipment.
  - (2) Protectors shall meet minimum requirements for fit, durability, etc.
  - (3) Persons with corrective lenses in spectacles - Specifies special equipment
  - (4) Eye and face PPE shall be distinctly marked to facilitate identification of the

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turer.

(5) Employer must ensure that each affected employee uses equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.

(b) Criteria for devices

(1) Purchased after July 5, 1994 shall comply with ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection,".

(2) Purchased before July 5, 1994 shall comply with the ANSI "USA standard for Occupational and Educational Eye and Face Protection," Z87.1-1968.

**29 CFR 1910.134 Respiratory protection**

(a) Permissible practice

- (1) Use of equipment to prevent breathing contaminated air
- (2) Respirators provided by employer when equipment is necessary
- (3) Employee shall use device in accordance with training and instructions

(b) Requirements for a minimal acceptable program

- (1) Written standard operating procedures
- (2) Respirators selected on basis of hazard
- (3) User shall receive training in proper use
- (4) Removed
- (5) Regular cleaning of unit
- (6) Storage of unit
- (7) Inspected routinely - at least once a month and after use
- (8) Appropriate surveillance or work area and degree of exposure or stress shall be maintained
- (9) Regular inspection and evaluation to determine effectiveness of program
- (10) Persons shall not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The local physician shall determine what health and physical conditions are pertinent. The respirators user's medical status should be reviewed periodically (for instance annually)
- (11) Approved or accepted respirators shall be used

(c) Selection of respirators

- (1) Proper selection according to American National Standard Practices for Respiratory Protection Z88.2-1969

(d) Air quality

- (1) Grade D breathing air
- (2) Breathing air may be supplied by cylinders or compressor
- (3) Air line couplings shall be appropriate
- (4) Breathing air containers shall be marked accordingly

(e) Use of respirators

- (1) Standard procedures shall be developed for use

- (2) Correct respirator shall be specified for each job
  - (3) Written procedures shall be prepared covering safe use in dangerous atmospheres
  - (4) Frequent random inspections of equipment
  - (5) Proper instruction shall be provided to wearer
- (f) Maintenance and care of respirators
- (1) Program for maintenance and care shall be established
  - (2) Inspection procedures
  - (3) Routinely used respirators shall be collected and cleaned as frequently as necessary to insure proper protection to the wearer
  - (4) Replacement or repairs shall be done by experienced persons
  - (5) Shall be properly stored after inspection and cleaning
- (g) Identification of gas mask canisters
- (1) Properly worded labels shall be used to identify units
  - (2) Those who issue units shall see that they are properly used and labeled
  - (3) Units shall have proper markings
  - (4) Special high-efficiency filter for protection against radionuclides shall be properly labeled
  - (5) Units may only be used in atmospheres above 16% oxygen level
  - (6) Each unit shall be painted a distinctive color

**29 CFR 1910.135 Occupational head protection**

- (a) General provisions
- (1) The employer shall ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling objects.
  - (2) The employer shall ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.
- (b) Criteria for devices
- (1) Protective helmets purchased after July 5, 1994 shall comply with ANSI Z89.1-1986, "American National Standard for Personnel Protection-Protective Headwear for Industrial Workers-Requirements".
  - (2) Protective helmets purchased before July 5, 1994 shall comply with the ANSI standard "American National Standard Safety Requirements for Industrial Head Protection," ANSI Z89.1-1969.

**29 CFR 1910.136 Occupational foot protection**

- (a) The employer shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or piercing the sole, and where such employee's feet are exposed to electrical hazards.

(b) Criteria for devices

- (1) Protective footwear purchased after July 5, 1994 shall comply with ANSI Z41-1991, “American National Standard for Personal Protection-Protective Footwear”.
- (2) Protective footwear purchased before July 5, 1994 shall comply with the ANSI standard “USA Standard for Men’s Safety-Toe Footwear,” Z41.1-1967

**29 CFR 1910.137      Electrical protective devices.**

This section outlines the performance criteria for electrical shock protection, in addition to minimal maintenance requirements, for Personal Protective Equipment, where applicable (i.e. gloves).

**29 CFR 1910.138      Hand protection**

- (a) Employers shall select and require employees to use appropriate hand protection when exposed to hazards such as:
  - (1) Skin absorption of harmful substances
  - (2) Severe cuts and lacerations
  - (3) Severe abrasions
  - (4) Punctures
  - (5) Chemical or thermal burns
  - (6) Harmful temperature extremes
  
- (b) Employers shall base selection on an evaluation of performance characteristics of the hand protection relative to:
  - (1) Task(s) to be performed
  - (2) Conditions present
  - (3) Duration of use
  - (4) Hazards and potential hazards identified

## Permit-Required Confined Spaces for General Industry

### 29 CFR 1910.146: Final Rule

(Federal Register Vol. 58 No. 9/ Thursday January 14, 1993)

The purpose of this section is to describe the recommended procedures to be followed with regard to confined spaces in industry. Also, it includes definitions of both permit and non-permit required confined spaces and the regulations that apply to each. Confined spaces are often overlooked in industry, yet they are one of the leading causes of death in today's industrial environment.

**(a) Scope and application** *pg 4549*

This regulation contains requirements for practices and procedures to protect employees in general industry from the hazards of entry into permit-required confined spaces. This section does not apply to agriculture, to construction, or shipyard employment.

**(b) Definitions** *pg 4549*

- “Acceptable entry conditions” - Conditions that must exist to allow entry
- “Attendant” - Individual stationed outside who monitors authorized entrants
- “Authorized entrant” - Employee authorized to enter a permit space
- “Blanking or binding” - Absolute closure of a pipe, line, duct, etc.
- “Confined space” - Large enough to enter, limited or restricted egress and entry, is not designed for employee occupancy
- “Double block and bleed” - Closure of line, pipe, duct, etc. and opening drain
- “Emergency” - event that may endanger occupants
- “Engulfment” - Material surrounding victim that can be aspirated and cause death by strangulation, constriction, or crushing
- “Entry” - Pass through an opening into permit-required space
- “Entry permit” - Written document provided by employer to allow and control entry
- “Entry supervisor” - Person such as foreman, crew chief, etc.
- “Hazardous atmosphere” - Atmosphere that may expose employees to risk of death, incapacitation, impairment of ability to self-rescue, or injury from causes such as:
  - Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit
  - Airborne combustible dust at a concentration that meets or exceeds its lower flammable limits
  - Atmospheric oxygen concentration below 19.5 percent or above 23.5
  - Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published
  - Any atmospheric condition that is immediately dangerous to life or health
- “Hot work permit” - A permit for welding, cutting, etc.
- “Immediately dangerous to life and health” - Any condition that poses an immediate or delayed threat to life
- “Inerting” - Means the displacement of the atmosphere with a noncombustible gas

- “Isolation” - Completely removed and protected against the release of energy
- “Oxygen deficient atmosphere” - Oxygen level below 19.5 percent
- “Permit required space” - Space that contains a hazardous atmosphere, material that has the potential for engulfment, or has internal configuration that may trap an individual such as inwardly converging walls
- “Prohibited condition” - Any condition in a permit space not allowed during an entry
- “Rescue service” - The personnel designated to rescue employees from permit spaces
- “Retrieval system” - Equipment to lift persons from a permit space
- “Testing” - Process by which hazards are identified and evaluated

**(c) General requirements *pg 4551***

- (1) The employer shall evaluate the workplace to determine if any spaces are permit-required confined spaces.
- (2) If permit area is determined, the employer shall inform exposed employees.
- (3) If the employer deems there will be no entry, take measures to prohibit entry.
- (4) If the employer deems entry is appropriate, develop written plan.
- (5) An employer may use specified alternate procedures to enter area.
- (6) When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the employer shall reevaluate that space and, if necessary, reclassify it as a permit-required confined space.
- (7) A space classified by the employer as a permit-required confined space may be reclassified as a non-permit confined space under specific procedures.
- (8) When an employer (host employer) arranges to have employees of another employer (contractor) perform work that involves permit space entry, the host employer shall inform the contractor of permit spaces, apprise the contractor of the elements, that make it a permit space, apprise the contractor of any precautions, coordinate entry operations with contractor and debrief contractor.
- (9) In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall obtain available information about permit space hazards, coordinate entry operations, and inform host employer of permit space program contractor will follow.

**(d) Permit space program**

- (1) Implement the measures necessary to prevent unauthorized entry.
- (2) Identify and evaluate the hazards of permit spaces before employees enter them.
- (3) Develop and implement the means, procedures, and practices necessary for safe permit space entry operations.
- (4) Provide the following equipment at no cost to employees, maintain that equipment properly, and ensure that employees use that equipment properly.
- (5) Evaluate permit space conditions using specified procedures when entry operations are conducted.
- (6) Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.

- (7) If multiple spaces are to be monitored by a single attendant, include procedures to enable the attendant to respond to an emergency affecting one or more of the permit spaces.
- (8) Designate the persons who are to have active roles in entry operations, identify the duties of each such employee, and provide each such employee with the appropriate training.
- (9) Develop and implement procedures for summoning rescue and emergency services, for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.
- (10) Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this section.
- (11) Develop and implement procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space.
- (12) Develop and implement procedures necessary for concluding the entry after entry operations have been completed.
- (13) Review and revise entry operations when the employer has reason to believe that the measures taken under the permit space program may not protect employees.
- (14) Review the permit space program, using the canceled permits within 1 year after each entry and revise the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.

**(e) Permit system**

- (1) Before entry is authorized, the employer shall document the completion of measures by preparing an entry permit.
- (2) Before entry begins, entry supervisor identified must sign the entry permit to authorize entry.
- (3) The completed permit shall be posted at the entry portal or by any other equally effective means.
- (4) The duration of the permit may not exceed the time required to complete the assigned task on the permit.
- (5) The entry supervisor shall terminate entry and cancel the entry permit when entry operations have been completed, or a condition that is not allowed arises.
- (6) The employer shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program

**(f) Entry permit**

The entry permit that documents compliance with this section and authorizes entry to a permit space shall identify:

- (1) The permit space to be entered;
- (2) The purpose of the entry;
- (3) The date and the authorized duration of the entry permit;
- (4) The authorized entrants within the permit space, by name or by such other means as will enable the attendant to determine quickly and accurately, for the duration of the permit;
- (5) The personnel, by name, currently serving as attendants;
- (6) The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry;
- (7) The hazards of the permit space to be entered;
- (8) The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

- (9) The acceptable entry conditions;
- (10) The results of initial and periodic tests accompanied by the names or initials of the testers and by an indication of when the tests were performed;
- (11) The rescue and emergency services that can be summoned and the means for summoning those services;
- (12) The communication procedures used by authorized entrants and attendants to maintain contact during the entry;
- (13) Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this section;
- (14) Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety; and
- (15) Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

**(g) Training**

- (1) The employer shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned..
- (2) Training shall be provided to each affected employee before the employee is first assigned, before there is a change in assigned duties, when there is a change in permit space operations and whenever the employer has reason to believe there are deviations for permit entry procedures.
- (3) The training shall establish employee proficiency in the duties required by this section and shall introduce new or revised procedures, as necessary.
- (4) The employer shall certify that the training required has been accomplished. The certification shall contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification shall be available for inspection by employees and the authorized representatives.

**(h) Duties of authorized entrants**

The employer shall ensure that all authorized entrants:

- (1) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (2) Properly use equipment;
- (3) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space;
- (4) Alert the attendant whenever the entrant recognizes warning sign or symptom of exposure to a dangerous situation, or detects a prohibited condition; and
- (5) Exit from the permit space as quickly as possible whenever an order to evacuate is given, the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant detects a prohibited condition, or an evacuation alarm is activated.

**(i) Duties of attendants**

The employer shall ensure that each attendant:

- (1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (2) Is aware of possible behavioral effects of hazard exposure in authorized entrants;
- (3) Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants accurately identifies who is in the permit space;
- (4) Remains outside the permit space during entry operations until relieved by another attendant;
- (5) Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space;
- (6) Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under certain conditions;
- (7) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;
- (8) Takes actions when unauthorized persons approach or enter a permit space while entry is underway to warn unauthorized person of hazards, advise unauthorized person to exit, and inform authorized entrants and supervisor if unauthorized persons have entered;
- (9) Performs non-entry rescues as specified by the employer's rescue procedure; and
- (10) Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

**(j) Duties of entry supervisors**

The employer shall ensure that each entry supervisor:

- (1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (2) Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- (3) Terminates the entry and cancels the permit;
- (4) Verifies that rescue services are available and that the means for summoning them are operable;
- (5) Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and
- (6) Determines, whenever responsibility for a permit space entry operation is transferred, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

**(k) Rescue and emergency services**

- (1) Employer shall ensure that each member of the rescue service is provided with, and is trained to use properly, the personal protective equipment and rescue equipment necessary for making rescues from permit spaces, perform the assigned duties, practice making rescues at least once every 12 months, trained in basic first aid and CPR.
- (2) When an employer (host employer) arranges to have persons other than the host employer's employees perform permit space rescue, the host employer shall inform rescue service of hazards they may confront, and provide rescue service with access to all permit spaces.

- (3) To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.
- (4) If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

## VENTILATION

### Basic Field Application for Confined Space Operations

The purpose of this section is to show when and where ventilation is necessary, as well as the various types of ventilation used.

#### General Requirements

- Any time an area is known to be contaminated with dust or fumes (toxic or not), a ventilation system shall be installed.
- A respiratory protection program shall be established wherever it is necessary to use respiratory protection equipment. (See *Personal Protective Equipment*)

#### Examples of hazards to look for in the work area include:

- dust hazards from abrasive blasting
- blast cleaning enclosures
- organic abrasives which are combustible
- areas where particulate fibers are present
- dust hazards in general

#### Ventilation Requirements

Testing should be done in the ventilation area before any operation takes place in an area where oxygen concentration is less than 19.5% or the Lower Explosive Limit (LEL) is greater than 10%.

#### Types of Ventilation Systems

- Open air ventilation
- Constant air flow systems

#### Exhaust Systems

Fans shall be grounded in areas ventilating flammable dusts or fumes. The fan shall be approved for the particular conditions or hazard.



## **BLOODBORNE DISEASES**

### **29 CFR 1910.1030**

The purpose of this section is to serve as a guide to help protect employees from exposure to blood or infectious materials in the work place. It will help employers and supervisors provide written programs and policies that will help ensure work place safety when there is a possibility of exposure to body fluids. Also, it serves as a training guideline for employees and promotes awareness of bloodborne dangers in the work place.

#### **(a) Scope and Application**

This section applies to all occupational exposure to blood or other potentially infectious materials. This section outlines those measures that can be taken to prevent or minimized exposure to bloodborne pathogens through proper planning. It also provides guidelines for the proper cleanup and disposal of those materials, including bodily fluids, that may cause disease.

#### **(b) Definitions**

- “Assistant Secretary” means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.
- “Blood” means human blood, human blood components, and products made from human blood.
- “Bloodborne Pathogens” means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).
- “Clinical Laboratory” means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.
- “Contaminated” means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
- “Contaminated Laundry” means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.
- “Contaminated Sharps” means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.
- “Decontamination” means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.
- “Director” means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.
- “Engineering Controls” means controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove the bloodborne pathogens hazard from the workplace.
- “Exposure Incident” means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee’s duties.
- “Handwashing Facilities” means a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.
- “Licensed Healthcare Professional” is a person whose legally permitted scope of practice allows him or her to independently perform the activities required by paragraph (f) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.
- “HBV” means hepatitis B virus.
- “HIV” means human immunodeficiency virus.

- “Occupational Exposure” means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties.
- “Other Potentially Infectious Materials” means (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.
- “Parenteral” means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.
- “Personal Protective Equipment” is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.
- “Production Facility” means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.
- “Regulated Waste” means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.
- “Research Laboratory” means a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.
- “Source Individual” means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.
- “Sterilize” means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.
- “Universal Precautions” is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.
- “Work Practice Controls” means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

### **(c) Exposure Control**

- (1) Each employer having an employee(s) with occupational exposure shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure, which includes the exposure determination, the schedule and method of implementation of the plan, and the procedure for the evaluation of circumstances. Each employer shall ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.1020(e) and that the plan will be reviewed and updates at least annually.
- (2) Each employer who has an employee(s) with occupational exposure shall prepare an exposure determination. This exposure determination shall be made without regard to the use of personal protective equipment.

### **(d) Methods of Compliance**

- (1) Universal precautions shall be observed to prevent contact with blood or other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials.
- (2) Engineering and work practice controls shall be used to eliminate or minimize employee exposure, engineering controls shall be examined and maintained, employers shall provide handwashing facilities which are readily accessible to employees or provide either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes, and ensure that employees wash their hands any other skin with soap and water immediately.
  - Contaminated needles and other contaminated sharps shall not be bent, recapped, or removed.
  - Shearing or breaking of contaminated needles is prohibited.
  - Immediately or as soon as possible after use, contaminated reusable sharps shall be placed in appropriate containers until properly reprocessed.
  - Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.
  - Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or benchtops where blood or other potentially infectious materials are present.
  - All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of these substances.
  - Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.
  - Specimens of blood or other potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.
  - Equipment which may become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary, unless the employer can demonstrate that decontamination of such equipment or portions of such equipment is not feasible.
- (3) When there is occupational exposure, the employer shall provide, at no cost to the employee, and ensure employee uses appropriate personal protective equipment such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices.
- (4) Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer shall determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.

**(e) HIV and HBV Research Laboratories and Production Facilities**

- (1) This paragraph applies to research laboratories and production facilities engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV. It does not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissues, or organs. These requirements apply in addition to the other requirements of the standard.
- (2) Research laboratories and production facilities shall meet a specified criteria, including but not limited to, incinerating or decontaminating all regulated waste, keeping lab doors closed when working with HIV or HBV, placing all contaminated materials in a durable, leakproof, labeled or color-coded container, limiting to authorized persons, posting hazard warning signs, conducting activities in biological safety cabinets that involve potentially infectious materials, and wearing appropriate protective clothing. Certified biological safety cabinets (Class I, II, or III) or other appropriate combinations of personal protection or physical containment devices shall be used for all activities with other potentially infectious materials.

- (3) HIV and HBV research laboratories shall meet the specified criteria, including each laboratory shall contain a facility for hand washing and an eye wash facility which is readily available within the work area, and an autoclave for decontamination of regulated waste shall be available.
- (4) HIV and HBV production facilities shall meet the specified criteria, including work areas shall be separated from areas that are open to unrestricted traffic flow within the building, work area shall be water resistant, sink for hand washing shall be provided, access doors shall be self-closing, an autoclave shall be available within or near work area, and a ducted exhaust-air ventilation system shall be provided.

**(f) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up**

- (1) The employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident and shall ensure that all medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are made available and conducted at no cost to the employee by an accredited laboratory, provided at a reasonable time and place, performed by or under the supervision of a licensed physician or under the supervision of another licensed healthcare professional, and provided according to recommendations of the U.S. Public Health Service current at the time these evaluations.
- (2) Hepatitis B vaccination shall be made available after the employee has received the training required in and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons.
- (3) Post-exposure Evaluation and Follow-up. Following a report of an exposure incident, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, including documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred, identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law; collection and testing of blood for HBV and HIV serological status, post-exposure prophylaxis, when medically indicated, counseling, and an evaluation of reported illnesses.
- (4) The employer shall ensure that the healthcare professional responsible for the employee's Hepatitis B vaccination is provided a copy of this regulation and ensure that the healthcare professional evaluating an employee after an exposure incident is provided with a copy of this regulation, a description of the exposed employee's duties as they relate to the exposure incident, documentation of the route(s) of exposure and circumstances under which exposure occurred, results of the source individual's blood testing, if available, and all medical records relevant to the appropriate treatment of the employee including vaccination status which are the employer's responsibility to maintain.
- (5) The employer shall obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation.
- (6) Medical records required by this standard shall be maintained.

**(g) Communication of Hazards to Employees**

- (1) Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to store, transport or ship blood or other potentially infectious materials. Labels required by this section shall include a legend, shall be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color, shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.
- (2) Employers shall ensure that all employees with occupational exposure participate in a training program which must be provided at no cost to the employee and during working hours.

**(h) Recordkeeping**

- (1) The employer shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020, including employee name and social security number, a copy of the hepatitis B vaccination status, a copy of all results of examinations, medical testing, and follow-up procedures, a copy of the healthcare professionals written opinion, and a copy of information provided to the healthcare professional. The employer shall ensure that employee medical records kept confidential, and not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by this section or as may be required by law.
- (2) Training records shall include the following information: the dates of the training sessions; the contents or a summary of the training sessions; the names and qualifications of persons conducting the training; and the names and job titles of all persons attending the training sessions. Records shall be maintained for 3 years from the date on which the training occurred.
- (3) The employer shall ensure that all records required to be maintained by this section shall be made available upon request to the Assistant Secretary and the Director, employees, to employee representatives, to the Director, and to the Assistant Secretary, and the subject employee for examination and copying.
- (4) The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h). If the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director, at least three months prior to their disposal and transmit them to the Director, if required by the Director to do so, within that three month period.

**(i) Effective Dates**

- (1) The standard shall become effective on March 6, 1992.
- (2) The Exposure Control Plan shall be completed on or before May 5, 1992.
- (3) Information and Training and Recordkeeping shall take effect on or before June 4, 1992.
- (4) Engineering and Work Practice Controls, Personal Protective Equipment, Housekeeping, HIV and HBV Research Laboratories and Production Facilities, Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, and Labels and Signs, shall take effect July 6, 1992.

## LOCKOUT / TAGOUT

### 29 CFR 1910.147

#### (a) Scope, application and purpose

This standard covers the servicing and maintenance of machines and equipment in which the “unexpected” energization or start up of the machines or equipment, or release of stored energy could cause injury to employees. This standard establishes minimum performance requirements for the control of such hazardous energy. This standard applies to the control of energy during servicing and/or maintenance of machines and equipment. This section requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy in order to prevent injury to employees.

#### (b) Definitions applicable to this section

- “Affected employee.” An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.
- “Authorized employee.” A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee’s duties include performing servicing or maintenance covered under this section.
- “Capable of being locked out.” An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.
- “Energized.” Connected to an energy source or containing residual or stored energy.
- “Energy isolating device.” A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.
- “Energy source.” Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
- “Hot tap.” A procedure used in the repair maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

- “Lockout.” The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.
- “Lockout device.” A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.
- “Normal production operations.” The utilization of a machine or equipment to perform its intended production function.
- “Servicing and/or maintenance.” Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy.
- “Setting up.” Any work performed to prepare a machine or equipment to perform its normal production operation.
- “Tagout.” The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.
- “Tagout device.” A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**(c) General Requirements**

- (1) The employer shall establish a program consisting of energy control procedures, employee training and to periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start-up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative.
- (2) If an energy isolating device is not capable of being locked out, the employer’s energy control program under paragraph shall utilize a tagout system, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection. After January 2, 1990, whenever replacement or major repair of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device.
- (3) When a tagout device is used on an energy isolating device which is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and the employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program and demonstrate full compliance with all tagout-related provisions
- (4) Procedures shall be developed, documented and utilized for the control of potentially hazardous energy when employees are engaged in the activities covered by this section. The procedures shall clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance.

- (5) Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by the employer for isolating, securing or blocking of machines or equipment from energy sources. Lockout devices and tagout devices shall be singularly identified; shall be the only device(s) used for controlling energy; shall not be used for other purposes; and shall meet the specific requirements of durability, standardization, substantialness, and identifiability.
- (6) The employer shall conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are being followed.
- (7) The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include authorized employees receiving training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control, affected employees being instructed in the purpose and use of the energy control procedure, employees being instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out, and limitations of tags. The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.
- (8) Lockout or tagout shall be performed only by the authorized employees who are performing the servicing or maintenance.
- (9) Affected employees shall be notified by the employer or authorized employee of the application and removal of lockout devices or tagout devices. Notification shall be given before the controls are applied, and after they are removed from the machine or equipment.

**(d) Application of control**

The established procedures for the application of energy control (the lockout or tagout procedures) shall cover the following elements and actions and shall be done in the following sequence:

- (1) Preparation for shutdown - Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
- (2) Machine or equipment shutdown- The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.
- (3) Machine or equipment isolation - All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).
- (4) Lockout or tagout device application - (1) Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees. (2) Lockout devices, where used, shall be affixed in a manner to that will hold the energy isolating devices in a "safe" or "off" position. (3) Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.

- (5) Stored energy - (1) Following the application of logout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe. (2) If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.
- (6) Verification of isolation - Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and deenergization of the machine or equipment have been accomplished.

**(e) Release from lockout or tagout**

Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by the authorized employee(s) to ensure the following:

- (1) The work area shall be inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.
- (2) The work area shall be checked to ensure that all employees have been safely positioned or removed. Before and after lockout or tagout devices are removed and before machines or equipment are energized, affected employees shall be notified that the lockout or tagout devices have been removed.
- (3) Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer's energy control program. The employer shall demonstrate that the specific procedure shall include verification by the employer that the authorized employee who applied the device is not at the facility, making all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed; and ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.

**(f) Additional requirements**

- (1) In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, in the following sequence of actions: (1) Clear the machine or equipment of tools and materials; (2) Remove employees from the machine or equipment area; (3) Remove the lockout or tagout devices; of this section; (4) Energize and proceed with testing or positioning; (5) Deenergize all systems and reapply energy control measures to continue the servicing and/or maintenance.
- (2) Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the on-site employer and the outside employer shall inform each other of their respective lockout or tagout procedures and shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the outside employer's energy control program.

- (3) When servicing and/or maintenance is performed by a crew, craft, department or other group, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.
- (4) Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy.

## HAZARD COMMUNICATION STANDARD WORKER RIGHT-TO-KNOW (RTK)

### 29 CFR 1910.1200

#### (a) Purpose

The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

#### (b) Scope and application

This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers. This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency, to laboratories with certain exceptions, and to work operations where employees only handle chemicals in sealed containers.

#### (c) Definitions

- “Article” means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.
- “Assistant Secretary” means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.
- “Chemical” means any element, chemical compound or mixture of elements and/or compounds.
- “Chemical manufacturer” means an employer with a workplace where chemical(s) are produced for use or distribution.
- “Chemical name” means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.
- “Combustible liquid” means any liquid having a flashpoint at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flashpoints of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.
- “Commercial account” means an arrangement whereby a retail distributor sells hazardous chemicals to an employer, generally in large quantities over time and/or at costs that are below the regular retail price.
- “Common name” means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.
- “Compressed gas” means: (i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F (21.1 deg. C); or (ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F (54.4 deg. C) regardless of the pressure at 70 deg. F (21.1 deg. C); or (iii) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F (37.8 deg. C) as determined by ASTM D-323-72.
- “Container” means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.
- “Designated representative” means any individual or organization to whom an employee gives written authorization to exercise such employee’s rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

- “Director” means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.
- “Distributor” means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.
- “Employee” means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.
- “Employer” means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.
- “Explosive” means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.
- “Exposure or exposed” means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure.
- “Subjected” in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)
- “Flammable” means a chemical that falls into one of the following categories:
  - (i) “Aerosol, flammable” means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;
  - (ii) “Gas, flammable” means: (A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or (B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;
  - (iii) “Liquid, flammable” means any liquid having a flashpoint below 100 deg. F (37.8 deg. C), except any mixture having components with flashpoints of 100 deg. F (37.8 deg. C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.
  - (iv) “Solid, flammable” means a solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.
- “Flashpoint” means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows: (i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79)) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100 deg. F (37.8 deg. C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or (ii) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79)) for liquids with a viscosity equal to or greater than 45 SUS at 100 deg. F (37.8 deg. C), or that contain suspended solids, or that have a tendency to form a surface film under test; or (iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)). Organic peroxides, which undergo auto-accelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.
- “Foreseeable emergency” means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.
- “Hazardous chemical” means any chemical which is a physical hazard or a health hazard.
- “Hazard warning” means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for “physical hazard” and “health hazard” to determine the hazards which must be covered.)
- “Health hazard” means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

- “Identity” means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.
- “Immediate use” means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.
- “Importer” means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.
- “Label” means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.
- “Material safety data sheet (MSDS)” means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.
- “Mixture” means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.
- “Organic peroxide” means an organic compound that contains the bivalent -O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.
- “Oxidizer” means a chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.
- “Physical hazard” means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.
- “Produce” means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.
- “Pyrophoric” means a chemical that will ignite spontaneously in air at a temperature of 130 deg. F (54.4 deg. C) or below.
- “Responsible party” means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.
- “Specific chemical identity” means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.
- “Trade secret” means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer’s business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix D sets out the criteria to be used in evaluating trade secrets.
- “Unstable (reactive)” means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.
- “Use” means to package, handle, react, emit, extract, generate as a by-product, or transfer.
- “Water-reactive” means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.
- “Work area” means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.
- “Workplace” means an establishment, job site, or project, at one geographical location containing one or more work areas.

### **(d) Hazard determination**

- (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.
- (2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section.
- (3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous: (i) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or, (ii) “Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment,” American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition). The chemical manufacturer, importer, or employer is still responsible for

evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard.

- (4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes: (i) National Toxicology Program (NTP), "Annual Report on Carcinogens" (latest edition); (ii) International Agency for Research on Cancer (IARC) "Monographs" (latest editions); or (iii) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.
- (5) The chemical manufacturer, importer or employer shall determine the hazards of mixing chemicals.
- (6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate, to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director.

#### **(e) Written hazard communication program**

- (1) Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified for labels and other forms of warning, material safety data sheets, and employee information and training will be met, including a list of the hazardous chemicals known to be present, and the methods the employer will use to inform employees of the hazards of non-routine tasks and the hazards associated with chemicals contained in unlabeled pipes in their work areas.
- (2) Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed shall additionally ensure that the hazard communication programs developed and implemented include the methods the employer will use to provide the other employer(s) on-site access to material safety data sheets for each hazardous chemical the other employer(s) employees may be exposed to while working; the methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and, the methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.
- (3) The employer may rely on an existing hazard communication program to comply with these requirements.
- (4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.1020 (e).
- (5) Where employees must travel between workplaces during a workshift, the written hazard communication program may be kept at the primary workplace facility.

#### **(f) Labels and other forms of warning**

- (1) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the identity of the hazardous chemical(s), the appropriate hazard warnings, and the name and address of the chemical manufacturer, importer, or other responsible party.
- (2) For solid metal, solid wood, or plastic items that are not exempted as articles due to their downstream use, or shipments of whole grain, the required label may be transmitted to the customer at the time of the initial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes. The label may be transmitted with the initial shipment itself, or with the material safety data sheet that is to be provided prior to or at the time of the first shipment.
- (3) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) and regulations issued under that Act by the Department of Transportation.
- (4) If the hazardous chemical is regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor or employer shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard.
- (5) The employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the following information, except as otherwise provided: (i) Identity of the hazardous chemical(s) contained therein; and, (ii) Appropriate hazard warnings, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.
- (6) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information.

- (7) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.
- (8) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.
- (9) The employer shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift.
- (10) The chemical manufacturer, importer, distributor or employer need not affix new labels to comply with this section if existing labels already convey the required information.
- (11) Chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical shall revise the labels for the chemical within three months of becoming aware of the new information.

**(g) Material safety data sheets**

- (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet in the workplace for each hazardous chemical which they use.
- (2) Each material safety data sheet shall be in English, and shall contain the following information: the identity used on the label, and on trade secrets, physical and chemical characteristics of the hazardous chemical, physical hazards of the hazardous chemical, health hazards of the hazardous chemical, the primary route(s) of entry, the OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available, whether the hazardous chemical is listed in the National Toxicology Program (NTP) Annual Report on Carcinogens (latest edition), any generally applicable precautions for safe handling and use, any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, emergency and first aid procedures, the date of preparation of the material safety data sheet or the last change to it; and, the name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.
- (3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.
- (4) Where complex mixtures have similar hazards and contents, the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.
- (5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination.
- (6) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their initial shipment, and with the first shipment after a material safety data sheet is updated and either provide material safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment.
- (7) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a material safety data sheet is updated. The distributor shall either provide material safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment; Wholesale distributors shall also provide material safety data sheets to employers or other distributors upon request.
- (8) The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s).
- (9) Where employees must travel between workplaces during a workshift, the material safety data sheets may be kept at the primary workplace facility.
- (10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals.
- (11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.1020(e). The Director shall also be given access to material safety data sheets in the same manner.

**(h) Employee information and training**

- (1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.
- (2) Employees shall be informed of: the requirements of this section, any operations in their work area where hazardous chemicals are present, and, the location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.
- (3) Employee training shall include: methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area, the physical and health hazards of the chemicals in the work area, the measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, and the details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

**(i) Trade secrets**

- (1) The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that the claim that the information withheld is a trade secret can be supported, information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed, the material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret, and, the specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph.
- (2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement.
- (3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld, to a health professional providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, under specific conditions.
- (4) The confidentiality agreement may restrict the use of the information to the health purposes indicated in the written statement of need, may provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages, and, may not include requirements for the posting of a penalty bond.
- (5) Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.
- (6) If the health professional, employee, or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional, employee, or designated representative prior to, or at the same time as, such disclosure.
- (7) If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity, the denial must be provided to the health professional, employee, or designated representative, within thirty days of the request, be in writing, include evidence to support the claim that the specific chemical identity is a trade secret, state the specific reasons why the request is being denied, and, explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.
- (8) The health professional, employee, or designated representative whose request for information is denied may refer the request and the written denial of the request to OSHA for consideration.
- (9) When a health professional, employee, or designated representative refers the denial to OSHA, OSHA shall consider the evidence to determine if: the chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret, the health professional, employee, or designated representative has supported the claim that there is a medical or occupational health need for the information, and, the health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.
- (10) If OSHA determines that the specific chemical identity requested is not a "bona fide" trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown

adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA. If the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations upon the disclosure.

- (11) If a citation for a failure to release specific chemical identity information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the Occupational Safety and Health Review Commission in accordance with the Act's enforcement scheme and the applicable Commission rules of procedure.
- (12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.
- (13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

**(j) Effective dates**

Chemical manufacturers, importers, distributors, and employers shall be in compliance with all provisions of this section by March 11, 1994.

## Joint Commission on Accreditation of Healthcare Organizations

Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is the primary standard setting body for the health care industry. The standards published by JCAHO reflect the work of many advisory groups from private, state and federal sectors, representing the expertise in the delivery of healthcare. The standards are a minimum benchmark for healthcare organizations to achieve in order to become accredited by JCAHO. The cornerstone of this process is *The Comprehensive Accreditation Manual for Hospitals: The Official Handbook (CAMH)*. This manual is updated on a quarterly basis to reflect the most current accreditation information and updated standards. The manual is divided into fifteen sections containing 578 individual standards relating to all phases of hospital organization and operations. The sections are:

- > Patient Rights and Organizational Ethics (RI Standards)
- > Assessment of Patients (PE Standards)
- > Care of Patients (TX Standards)
- > Education (PF Standards)
- > Continuum of Care (CC Standards)
- > Improving Organization Performance (PI Standards)
- > Leadership (LD Standards)
- > Management of the Environment of Care (EC Standards)
- > Management of Human Resources (HR Standard)
- > Management of Information (IM Standards)
- > Surveillance, Prevention and Control of Infection (IC Standards)
- > Governance (GO Standards)
- > Management (MA Standards)
- > Medical Staff (MS Standards)
- > Nursing (NR Standards)

In addition to the listed sections, the manual illustrates a detail outline of the accreditation process including the general intent of each standard along with the scoring and aggregation rules for each section.

This process is extremely important to hospitals as JCAHO accreditation is a requirement in most states for hospital licensure, Medicare/Medicaid funding and insurance payments.

The Joint Commission also publishes a manual entitled *Guidelines for the Design and Construction of Hospital and Health Care Facilities*. This document provides guidelines to providers, designers and construction organizations in the building of health care facilities.

For additional information on these publications and/or standards contact:

Joint Commission on Accreditation of Healthcare Organizations  
One Renaissance Boulevard  
Oakbrook Terrace, IL 60181-9887 Phone: (630) 792-5800

## Process Safety Management of Highly Hazardous Chemicals 29 CFR 1910.119

This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards.

### (a) Application

### (b) Definitions

- “Atmospheric tank” means a storage tank which has been designed to operate at pressures from atmospheric through 0.5 p.s.i.g. (pounds per square inch gauge, 3.45 Kpa).
- “Boiling point” means the boiling point of a liquid at a pressure of 14.7 pounds per square inch absolute (p.s.i.a.) (760 mm.). For the purposes of this section, where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, the 10 percent point of a distillation performed in accordance with the Standard Method of Test for Distillation of Petroleum Products, ASTM D-86-62, which is incorporated by reference as specified in Sec. 1910.6, may be used as the boiling point of the liquid.
- “Catastrophic release” means a major uncontrolled emission, fire, or explosion, involving one or more highly hazardous chemicals, that presents serious danger to employees in the workplace.
- “Facility” means the buildings, containers or equipment which contain a process.
- “Highly hazardous chemical” means a substance possessing toxic, reactive, flammable, or explosive properties and specified by paragraph (a)(1) of this section.
- “Hot work” means work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations.
- “Normally unoccupied remote facility” means a facility which is operated, maintained or serviced by employees who visit the facility only periodically to check its operation and to perform necessary operating or maintenance tasks. No employees are permanently stationed at the facility. Facilities meeting this definition are not contiguous with, and must be geographically remote from all other buildings, processes or persons.
- “Process” means any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.
- “Replacement in kind” means a replacement which satisfies the design specification.
- “Trade secret” means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer’s business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix D contained in 1910.1200 sets out the criteria to be used in evaluating trade secrets.

**(c) Employee participation**

- (1) Employers shall develop a written plan of action regarding the implementation of the employee participation required by this paragraph.
- (2) Employers shall consult with employees and their representatives on the conduct and development of process hazards analyses and on the development of the other elements of process safety management in this standard.
- (3) Employers shall provide to employees and their representatives access to process hazard analyses and to all other information required to be developed under this standard.

(d)(1)(i) through (d)(2)(i)(E) Process safety information. The employer shall complete a compilation of written process safety information to enable the employer and the employees involved in operating the process to identify and understand the hazards posed by those processes involving highly hazardous chemicals.

(d)(2)(ii) Where the original technical information no longer exists, such information may be developed in conjunction with the process hazard analysis in sufficient detail to support the analysis.

(d)(3)(i)(A) through (d)(3)(i)(H) These paragraphs outline the required information regarding the equipment to be used in the applicable processes.

(d)(3)(ii) The employer shall document that equipment complies with recognized and generally accepted good engineering practices.

(d)(3)(iii) For existing equipment designed and constructed in accordance with codes, standards, or practices that are no longer in general use, the employer shall determine and document that the equipment is designed, maintained, inspected, tested, and operating in a safe manner.

(e)(1) Process hazard analysis shall be completed according to the following schedule:

- (i) No less than 25 percent of the initial process hazards analyses shall be completed by May 26, 1994;
- (ii) No less than 50 percent of the initial process hazards analyses shall be completed by May 26, 1995;
- (iii) No less than 75 percent of the initial process hazards analyses shall be completed by May 26, 1996;
- (iv) All initial process hazards analyses shall be completed by May 26, 1997.
- (v) Process hazards analyses completed after May 26, 1987 which meet the requirements of this paragraph are acceptable as initial process hazards analyses. These process hazard analyses shall be updated and revalidated, based on their completion date, in accordance with paragraph (e)(6) of this standard.

(e)(2)(i) through (e)(5) These paragraphs outline the choice of methodologies of the hazards analyses, the items that the analyses must address, who should conduct the analyses, and the

requirement to establish a system to address, implement and document the findings/recommendations resulting from the analyses.

(e)(6) through (e)(7) At least every five (5) years after the completion of the initial process hazard analysis, the process hazard analysis shall be updated and revalidated. Employers shall retain process hazards analyses and updates or revalidation's for each process covered by this paragraph for the life of the process.

(f)(1)(i)(A) through (f)(1)(iii)(C) These paragraphs cover the requirement to document normal and emergency operating procedures as well as precautions to avoid or minimize physical contact with the process' chemicals.

(f)(1)(iii)(D) & (E) Quality control for raw materials and control of hazardous chemical inventory levels and any special or unique hazards.

(f)(1)(iv) Safety systems and their functions.

(f)(2) Operating procedures shall be readily accessible to employees who work in or maintain a process.

(f)(3) The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice. The employer shall certify annually that these operating procedures are current and accurate.

(f)(4) The employer shall develop and implement safe work practices to provide for the control of hazards during operations. These safe work practices shall apply to employees and contractor employees.

(g)(1)(i) through (g)(3) Outlines the training required of employees and contractors and the documentation required.

(h)(1) through (h)(3)(v) These paragraphs are requirements that apply to contractors performing maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process only.

(i)(1) through (i)(2)(iv) The employer shall perform a pre-startup safety review for new facilities and for modified facilities when the modification is significant enough to require a change in process safety information. These paragraphs discuss the required elements of the pre-startup safety review.

(j)(1)(i) through (j)(j)(6)(iii) These paragraphs detail the requirements of the employer to assure and document the continued mechanical integrity of the equipment used in covered processes.

(k)(1) through (k)(2) Outline the requirements for Hot Work Permits on covered processes.

(l)(1) through (l)(5) These paragraphs outline the management of changes within the covered processes.

(m)(1) through (m)(7) These paragraphs outline the requirements and procedures for incident investigation. The employer shall investigate each incident which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace. Incident investigation reports shall be retained for five years.

(n) Emergency planning and response. The employer shall establish and implement an emergency action plan for the entire plant in accordance with the provisions of 29 CFR 1910.38(a). In addition, the emergency action plan shall include procedures for handling small releases. Employers covered under this standard may also be subject to the hazardous waste and emergency response provisions contained in 29 CFR 1910.120(a), (p) and (q).

(o)(1) through (o)(5) Compliance Audits must be conducted by the employer at least every 3 years. Employers shall retain the two (2) most recent compliance audit reports.

(p)(1) through (p)(3) ...Trade secrets...Employers shall make all information necessary to comply with the paragraph available to those persons responsible for compiling the process safety information, those assisting in the development of the process hazard analysis, those responsible for developing the operating, and those involved in incident investigations, emergency planning and response and compliance audits without regard to possible trade secret status of such information. Nothing shall preclude the employer from requiring the persons to whom the information is made to enter into confidentiality agreements not to disclose the information. Employees and their designated representatives shall have access to trade secret information contained within the process hazard analysis and other documents required to be developed by this standard.

