

# OSHA TRAINING REQUIREMENTS FOR GENERAL INDUSTRY

The following training requirements have been excerpted from *Title 29, Code of Federal Regulations Part 1910*. Note that additional training requirements may appear in certain other standards (ANSI, CGA, NFPA, etc.) adopted by reference in *Part 1910* and therefore mandatory.

<b>Subject</b>	<b>Page</b>
<b>Subpart E</b> (Means of Egress)	4
Employee Emergency Plans and Fire Prevention Plans	4
<b>Subpart F</b> (Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms)	
Powered Platforms for Building Maintenance—Operations-Training	5
Care and use Appendix C, Section 1	5
<b>Subpart G</b> (Occupational Health and Environmental Control)	
DipTanks—Personal Protection	5
Inspection, Maintenance, and Installation	5
Hearing Protection	6
Training Program	6
<b>Subpart H</b> (Hazardous Materials)	
Flammable and Combustible Liquids	6
Explosives and Blasting Agents	6
Bulk Delivery and Mixing Vehicles	7
Storage and Handling of Liquefied Petroleum Gases	7
Process Safety Management of Highly Hazardous Chemicals	7
Contract Employer Responsibilities	8
Mechanical Integrity	8
Hazardous Waste Operations and Emergency Response	8
Hazardous Waste Cleanup Workers	11
New Technology Programs Responders	11
Hazardous Waste—Emergency	13
<b>Subpart I</b> (Personal Protective Equipment)	
Respiratory Protection	16
Respiratory Protection for M Tuberculosis	[Omitted]
<b>Subpart J</b> (General Environmental Controls)	
Temporary Labor Camps	[Omitted]
Specifications for Accident Prevention Signs and Tags	18
Permit Required Confined Spaces	19
The Control of Hazardous Energy (Lockout/Tagout)	20

Lockout or Tagout Devices Removed	21
Outside Personnel	21
<b>Subpart K (Medical Services and First Aid)</b>	
Medical Services and First Aid	21
<b>Subpart L (Fire Protection)</b>	
Fire Protection	22
Fire Brigades	22
Training and Education	22
Portable Fire Extinguishers	23
Fixed Extinguishing Systems	23
Fire Detection Systems	23
Employee Alarm Systems	24
<b>Subpart N (Materials Handling and Storage)</b>	
Servicing of Multi-Piece and Single-Piece Rim Wheels	24
Powered Industrial Trucks	26
Moving the Load	29
Crawler Locomotives and Truck Cranes	29
<b>Subpart O (Machinery and Machine Guarding)</b>	
Mechanical Power Presses	29
Mechanical Power Presses—Instructions to Operators	29
Training of Maintenance Personnel	30
Operator Training	30
Forging Machines	30
<b>Subpart Q (Welding, Cutting, and Brazing)</b>	
General Requirements	31
Oxygen—Fuel Gas Welding and Cutting	31
Arc Welding and Cutting	31
Resistance Welding	31
<b>Special Industries</b>	
Pulp, Paper, and Paperboard Mills	[Omitted]
Laundry Machinery and Operating Rules	[Omitted]
Sawmills	[Omitted]
Logging	[Omitted]
Telecommunications	[Omitted]
Derrick Trucks	[Omitted]
Cable Fault Locating	[Omitted]
Guarding Manholes	[Omitted]
Joint Power and Telecommunication Manholes	[Omitted]
Tree Trimming—Electrical Hazards	[Omitted]
Electric Power Generation, Transmission, and Distribution	[Omitted]
Grain Handling Facilities	[Omitted]

Entry Into Bins, Silos, and Tanks	[Omitted]
Contractors	[Omitted]
<b>Subpart S</b> (Electrical Safety-Related Work Practices)	
Content of Training	31
<b>Subpart T</b> (Commercial Diving Operations)	
Qualifications of Dive Team	[Omitted]
<b>Subpart Z</b> (Toxic and Hazardous Substances)	
Asbestos	31
4-Nitrobiphenyl	32
Alpha-Naphthylamine	32
Methyl Chloromethyl Ether	32
3, 3'-Dichlorobenzidine (and its salts)	32
Bis-Chloromethyl Ether	32
Beta-Naphthylamine	32
Benzidine	33
4-Aminodiphenyl	33
Ethyleneimine	33
Beta-Propiolactone	33
2-Acetylaminofluorene	33
4-Dimethylaminoazobenzene	33
N-Nitrosodimethylamine	33
Vinyl Chloride	34
Inorganic Arsenic	34
Lead	35
Cadmium	36
Benzene	37
Coke Oven Emissions	37
Bloodborne Pathogens	38
Cotton Dust	[Omitted]
1,2-Dibromo-3-Chloropropane	40
Acrylonitrile (Vinyl Cyanide)	41
Ethylene Oxide	41
Formaldehyde	42
4, 4' Methylenedianiline	43
Ionizing Radiation Testing	43
Posting	43
Hazard Communication	44
Occupational Exposure to Hazardous Chemicals in Laboratories	44

**Employee  
Emergency  
Plans and Fire  
Prevention Plans**  
1910.38(a)(5)(i),  
(ii)(a)  
through (c) and (iii)

(i) Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.  
(ii) The employer shall review the plan with each employee covered by the plan at the following times:  
(a) Initially when the plan is developed,  
(b) Whenever the employee's responsibilities or designated actions under the plan change, and  
(c) Whenever the plan is changed.  
(iii) The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.

1910.38(b)(4)(i)  
and (ii)

(i) The employer shall apprise employees of the fire hazards of the materials and processes to which they are exposed.  
(ii) The employer shall review with each employee upon initial assignment those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept in the workplace and made available for employee review. For those employers with 10 or fewer employees, the plan may be communicated orally to employees and the employer need not maintain a written plan.

**Powered  
Platforms  
for Building  
Maintenance—  
Operations  
Training**  
1910.66(i), (ii) and  
(ii)(A) through (E),  
and  
(iii) through (v)

(i) Working platforms shall be operated only by persons who are proficient in the operation, safe use and inspection of the particular working platform to be operated.  
(ii) All employees who operate working platforms shall be trained in the following:  
(A) Recognition of, and preventive measures for, the safety hazards associated with their individual work tasks.  
(B) General recognition and prevention of safety hazards associated with the use of working platforms, including the provisions in the section relating to the particular working platform to be operated.  
(C) Emergency action plan procedures required in paragraph (e)(9) of this section.  
(D) Work procedures required in paragraph (i)(1)(iv) of this section.  
(E) Personal fall arrest system inspection, care, use and system performance.

- (iii) Training of employees in the operation and inspection of working platforms shall be done by a competent person.
- (iv) Written work procedures for the operation, safe use and inspection of working platforms shall be provided for employee training. Pictorial methods of instruction, may be used, in lieu of written work procedures, if employee communication is improved using this method. The operating manuals supplied by manufacturers for platform system components can serve as the basis for these procedures.
- (v) The employer shall certify that employees have been trained in operating and inspecting a working platform by preparing a certification record which includes the identity of the person trained, the signature of the employer or the person who conducted the training and the date that training was completed. The certification record shall be prepared at the completion of the training required in paragraph (i)(1)(ii) of this section, and shall be maintained in a file for the duration of the employee's employment. The certification record shall be kept readily available for review by the Assistant Secretary of Labor or the Assistant Secretary's representative.

**Care and Use  
Appendix  
C, Sec. I(e)(9)**

(9) Before using a personal fall arrest system, and after any component or system is changed, employees shall be trained in accordance with the requirements of paragraph 1910.66(i)(1), in the safe use of the system.

**Dip Tanks —  
1910.94(d)(9)(i)**

(9) *Personal protection.* (i) All employees working in and around open surface tank operations must be instructed as to the hazards of their respective jobs, and in the personal protection and procedures applicable to these hazards.

1910.94(d)(9)(vi)

(vi) Respirators shall be used in accordance with § 1910.134, and persons who may require them shall be trained in their use.

**Inspection,  
Maintenance and  
Installation  
1910.94(d)(11)(v)**

(v) If, in emergencies, such as rescue work, it is necessary to enter a tank which may contain a hazardous atmosphere, suitable respirators, such as self-contained breathing apparatus; hose mask with blower, if there is a possibility of oxygen deficiency; or a gas mask, selected and operated in accordance with paragraph (d)(9)(vi) of this section, shall be used. If a contaminant in the tank can cause dermatitis, or be absorbed through the skin, the employee entering the tank shall also wear protective clothing. At least one trained standby employee, with suitable respirator, shall be present in the nearest uncontaminated area. The standby employee must be able to communicate with the employee in the tank and be able to haul him out of the tank with a lifeline if necessary.

**Hearing Protect.**  
1910.95(i)(4)

(4) The employer shall provide training in the use and care of all hearing protectors provided to employees.

**Training Program**  
1910.95(k)(1)  
through (3)(i)  
through (iii)

(1) The employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time weighted average of 85 decibels, and shall ensure employee participation in such program.  
(2) The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.  
(3) The employer shall ensure that each employee is informed of the following:  
(i) The effects of noise on hearing;  
(ii) The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and  
(iii) The purpose of audiometric testing, and an explanation of the test procedures.

**Flammable and  
Combustible  
Liquids**  
1910.106(b)(5)(v)  
(2) and (3)

(2) That detailed printed instructions of what to do in flood emergencies are properly posted.  
(3) That station operators and other employees depended upon to carry out such instructions are thoroughly informed as to the location and operation of such valves and other equipment necessary to effect these requirements.

**Explosive and  
Blasting  
Agents**  
1910.109(d)(3)(i)  
and  
(iii)

(i) Vehicles transporting explosives shall only be driven by and be in the charge of a driver who is familiar with the traffic regulations, State laws, and the provisions of this section.  
(iii) Every motor vehicle transporting any quantity of Class A or Class B explosives shall, at all times, be attended by a driver or other attendant of the motor carrier. This attendant shall have been made aware of the class of the explosive material in the vehicle and of its inherent dangers, and shall have been instructed in the measures and procedures to be followed in order to protect the public from those dangers. He shall have been made familiar with the vehicle he is assigned, and shall be trained, supplied with the necessary means, and authorized to move the vehicle when required.

1910.109  
(g)(3)(iii)(a)  
1910.109(g)(6)(ii)

(iii)(a) The operator shall be trained in the safe operation of the vehicle together with its mixing, conveying, and related equipment. The employer shall assure that the operator is familiar with the commodities being delivered and the general procedure for handling emergency situations.

- (ii) Vehicles transporting blasting agents shall only be driven by and be in charge of a driver in possession of a valid motor vehicle operator's license. Such a person shall also be familiar with the States vehicle and traffic laws.
- Bulk Delivery and Mixing Vehicles  
1910.109(h)(3)(d)  
(iii)
- (iii) The operator shall be trained in the safe operation of the vehicle together with its mixing, conveying, and related equipment. He shall be familiar with the commodities being delivered and the general procedure for handling emergency situations.
- Storage and Handling of LPG**  
1910.110(b)(16),  
1910.110(d)(12)(i)
- (16) Instructions. Personnel performing installation, removal, operation, and maintenance work shall be properly trained in such functions.
- (i) When standard watch service is provided, it shall be extended to the LP-Gas installation and personnel properly trained.
- 1910.111(b)(13)(ii)
- (ii) The employer shall insure that unloading operations are performed by reliable persons properly instructed and given the authority to monitor careful compliance with all applicable procedures.
- Process Safety Management of Highly Hazardous Chemicals**  
1910.119(g)(1)(i)  
and (ii)
- (g) *Training.* (1) *Initial training.* (i) Each employee presently involved in operating a process, and each employee before being involved in operating a newly assigned process, shall be trained in an overview of the process and in the operating procedures as specified in paragraph (f) of this section. The training shall include emphasis on the specific safety and health hazards, emergency operations including shutdown, and safe work practices applicable to the employee's job tasks.
- (ii) In lieu of initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.
- 1910.119(g)(2)
- (2) *Refresher training.* Refresher training shall be provided at least every three years, and more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. The employer, in consultation with the employees involved in operating the process, shall determine the appropriate frequency of refresher training.
- 1910.119(g)(3)
- (3) *Training documentation.* The employer shall ascertain that each employee involved in operating a process has received and understood the training required by this paragraph. The

employer shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training.

Contract Employer Responsibilities  
1910.119(h)(3)(i)  
through (iv)

(3) *Contract employer responsibilities.* (i) The contract employer shall assure that each contract employee is trained in the work practices necessary to perform his/her job.  
(ii) The contract employer shall assure that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan.  
(iii) The contract employer shall document that each contract employee has received and understood the training required by this paragraph. The contract employer shall prepare a record which contains the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training.  
(iv) The contract employer shall assure that each contract employee follows the safety rules of the facility including the safe work practices required by paragraph (f)(4) of this section.

Mechanical Integrity  
1910.119(j)(3)

(3) *Training for process maintenance activities.* The employer shall train each employee involved in maintaining the ongoing integrity of process equipment in an overview of that process and its hazards and in the procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner.

**Hazardous Waste Operations and Emergency Response**  
1910.120(e)(1)(i)  
and  
(ii); (2)(i) through (vii);  
(3)(i) through (iv)  
and  
(4) through (9)

(e) *Training* (1) *General* (i) All employees working on site (such as but not limited to equipment operators, general laborers and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards, and they shall receive review training as specified in this paragraph.  
(ii) Employees shall not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.  
(2) *Elements to be covered.* The training shall thoroughly cover the following:  
(i) Names of personnel and alternates responsible for site safety and health;  
(ii) Safety, health and other hazards present on the site;  
(iii) Use of personal protective equipment;  
(iv) Work practices by which the employee can minimize risks

from hazards;

(v) Safe use of engineering controls and equipment on the site;

(vi) Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards; and

(vii) The contents of paragraphs (G) through (J) of the site safety and health plan set forth in paragraph (b)(4)(ii) of this section.

(3) *Initial training.* (i) General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor.

(ii) Workers on site only occasionally for a specific limited task (such as, but not limited to, ground water monitoring, land surveying, or geophysical surveying) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

(iii) Workers regularly on site who work in areas which have been monitored and fully characterized indicating that exposures are under permissible exposure limits and published exposure limits where respirators are not necessary, and the characterization indicates that there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of instruction off the site and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

(iv) Workers with 24 hours of training who are covered by paragraphs e)(3)(ii) and (e)(3)(iii) of this section, and who become general site workers or who are required to wear respirators, shall have the additional 16 hours and two days of training necessary to total the training specified in paragraph (e)(3)(i)(4).

(4) *Management and supervisor training.* Onsite management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall receive 40 hours initial training, and three days of supervised field experience the training may be reduced to 24 hours and one day if the only area of their responsibility is employees covered by paragraphs (e)(3)(ii) and (e)(3)(iii) and at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer's

safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

(5) *Qualifications for trainers.* Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.

(6) *Training certification.* Employees and supervisors that have received and successfully completed the training and field experience specified in paragraphs

(e)(1) through (e)(4) of this section shall be certified by their instructor or the head instructor and trained supervisor as having successfully completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of paragraph (e)(9) of this section shall be prohibited from engaging in hazardous waste operations.

(7) *Emergency response.* Employees who are engaged in responding to hazardous emergency situations at hazardous waste cleanup sites that may expose them to hazardous substances shall be trained in how to respond to such expected emergencies.

(8) *Refresher training.* Employees specified in paragraph (e)(1) of this section, and managers and supervisors specified in paragraph (e)(4) of this section, shall receive eight hours of refresher training annually on the items specified in paragraph (e)(2) and/or (e)(4) of this section, critiques of incidents that have occurred in the past year that can serve as training examples of any related work, and other relevant topics.

(9) *Equivalent training.* Employers who can show by documentation or certification that an employee's work experience and/or training has resulted in training equivalent to that training required in paragraphs (e)(1) through (e)(4) of this section shall not be required to provide the initial training requirements of those paragraphs to such employees. However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience.

However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience.

Hazardous Waste  
Cleanup Workers  
1910.120 Appendix  
C

2. *Training.* The training program for employees subject to the requirements of paragraph (e) of this standard should address: the safety and health hazards employees should expect to find on hazardous waste clean up sites; what control measures or techniques are effective for those hazards; what monitoring procedures are effective in characterizing exposure levels; what makes an effective employer safety and health program; what a site safety and health plan should include; hands-on training with personal protective equipment and clothing they may be expected to use; the contents of the OSHA standards relevant to the employee's duties and functions; and, employee's responsibilities under OSHA and other regulations.

(i) The employer shall develop and implement procedures for the introduction of effective new technologies and equipment developed for the improved protection of employees working with hazardous waste clean up operations, and the same shall be implemented as part of the site safety and health program to assure that employee protection is being maintained.

New Technology  
Programs  
1910.120(o)(i)

(iii) *Training.* (A) Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard operating procedures the employer has established for the job, the personal protective equipment to be worn and procedures for handling emergency incidents.

Note: *Exception #1:* An employer need not train all employees to the degree specified if the employer divided the work force in a manner such that a sufficient number of employees who have responsibility to control emergencies have the training specified, and all other employees, who may first respond to an emergency incident, have sufficient awareness training to recognize that an emergency response situation exists and that they are instructed in that case to summon the fully trained employees and not attempt control activities for which they are not trained.

Note: *Exception #2:* An employer need not train all employees to the degree specified if arrangements have been made in advance for an outside fully trained emergency response team to respond in a reasonable period and all employees, who may

come to the incident first, have sufficient awareness training to recognize that an emergency response situation exists and they have been instructed to call the designated outside, fully trained emergency response team for assistance.

(B) Employee members of TSD facility emergency response organizations shall be trained to a level of competence in the recognition of health and safety hazards to protect themselves and other employees. This would include training in the methods used to minimize the risk from safety and health hazards; in the safe use of control equipment; in the selection and use of appropriate personal protective equipment; in the safe operating procedures to be used at the incident scene; in the techniques of coordination with other employees to minimize risks; in the appropriate response to overexposure from health hazards or injury to themselves and other employees; and in the recognition of subsequent symptoms which may result from overexposures.

(C) The employer shall certify that each covered employee has attended and successfully completed the training required in paragraph (p)(8)(iii) of this section, or shall certify the employee's competency at least yearly. The method used to demonstrate competency for certification of training shall be recorded and maintained by the employer.

1910.120(p)(7)(i)  
through (iii)

(i) *New employees.* The employer shall develop and implement a training program, which is part of the employer's safety and health program, for employees exposed to health hazards or hazardous substances at TSD operations to enable the employees to perform their assigned duties and functions in a safe and healthful manner so as not to endanger themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the initial training required by this paragraph shall be given a written certificate attesting that they have successfully completed the necessary training.

(ii) *Current employees.* Employers who can show by an employee's previous work experience and/or training that the employee has had training equivalent to the initial training required by this paragraph, shall be considered as meeting the initial training requirements of this paragraph as to that employee. Equivalent training includes the training that existing employees might have already received from actual site work experience. Current employees shall receive eight hours of refresher training annually.

(iii) *Trainers.* Trainers who teach initial training shall have satisfactorily completed a training course for teaching the subjects they are expected to teach or they shall have the

academic credentials and instruction experience necessary to demonstrate a good command of the subject matter of the courses and competent instructional skills.

- 1910.120(p)(8)(iii)  
(A) (iii) *Training.* (A) Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard operating procedures the employer has established for the job, the personal protective equipment to be worn, and procedures for handling emergency incidents.
- 1910.120(q)(4) (4) *Skilled support personnel.* Personnel, not necessarily an employer's own employees, who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer's own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this paragraph for the employer's regular employees. However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer's own employees shall be used to assure the safety and health of these personnel.
- 1910.120(q)(5) (5) *Specialist employees.* Employees who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, and who will be called upon to provide technical advice or assistance at a hazardous substance release incident to the individual in charge, shall receive training or demonstrate competency in the area of their specialization annually.
- 1910.120(q)(6)(i)  
(A) through (F); (iii)(A)  
Through I; (iv)(A)  
through (I); (v)(A)  
through (F) (6) *Training.* Training shall be based on the duties and function to be performed by each responder of an emergency response organization. The skill and knowledge levels required for all new responders, those hired after the effective date of this standard, shall be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate in emergency response, shall be given training in accordance with the following paragraphs:

(i) *First responder awareness level.* First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

(A) An understanding of what hazardous substances are, and the risks associated with them in an incident.

(B) An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.

(C) The ability to recognize the presence of hazardous substances in an emergency.

(D) The ability to identify the hazardous substances, if possible.

(E) An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.

(F) The ability to realize the need for additional resources, and to make appropriate notifications to the communications center.

(ii) *First responder operations level.* First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:

(A) Knowledge of the basic hazard and risk assessment techniques.

(B) Know how to select and use proper personal protective equipment provided to the first responder operational level

(C) An understanding of basic hazardous materials terms.

(D) Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.

(E) Know how to implement basic decontamination procedures.

(F) An understanding of the relevant standard operating procedures and termination procedures.

(iii) *Hazardous materials technician.* Hazardous materials technicians are individuals who respond to releases or potential

releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

(A) Know how to implement the employer's emergency response plan.

(C) Be able to function within an assigned role in the Incident Command System

(D) Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.

(E) Understand hazard and risk assessment techniques.

(F) Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.

(G) Understand and implement decontamination.

(H) Understand termination procedures.

(I) Understand basic chemical and toxicological terminology and behavior

(iv) *Hazardous materials specialist.* Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer shall so certify:

(A) Know how to implement the local emergency response plan.

(B) Understand classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.

(C) Know of the state emergency response plan.

(D) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.

(E) Understand in-depth hazard and risk techniques.

(F) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources

and personal protective equipment available.

(G) Be able to determine and implement decontamination procedures.

(H) Have the ability to develop a site safety and control plan.

(I) Understand chemical, radiological and toxicological terminology and behavior.

(v) *On scene incident commander.* Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

(A) Know and be able to implement the employer's incident command system.

(B) Know how to implement the employer's emergency response plan.

(C) Know and understand the hazards and risks associated with employees working in chemical protective clothing.

(D) Know how to implement the local emergency response plan.

(E) Know of the state emergency response plan and of the Federal Regional Response Team.

(F) Know and understand the importance of decontamination procedures.

1910.120(q)(7)

(7) *Trainers.* Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

**Personal  
Protective  
Equipment**

1910.132(f)(1)(i)  
through (v); (2),  
(3)(i)  
through (iii) and (4)

(f) *Training.* (1) The employer shall provide training to each employee who is required by this section to use PPE. Each such employee shall be trained to know at least the following:

(i) When PPE is necessary;

(ii) What PPE is necessary;

(iii) How to properly don, doff, adjust and wear PPE;

(iv) The limitations of the PPE; and,

(v) The proper care, maintenance, useful life, and disposal of the PPE.

(2) Each affected employee shall demonstrate an understanding of the training specified in paragraph (f)(1) of this section and the ability to use PPE properly before being allowed to perform work requiring the use of PPE.

(3) When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (f)(2) of this section, the employer shall retrain each such employee.

Circumstances where retraining is required include, but are not limited to, situations where:

- (i) Changes in the workplace render previous training obsolete, or
  - (ii) Changes in the types of PPE to be used render previous training obsolete; or
  - (iii) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.
- (4) The employer shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification.

**Respiratory**

**Protection**

1910.134(k)(1)(i) through (vii); (2), (3), and (5)(i) through (iii)

- (k) *Training and information.* (1) The employer shall ensure that each employee can demonstrate knowledge of at least the following:
- (i) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
  - (ii) What the limitations and capabilities of the respirator are;
  - (iii) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
  - (iv) How to inspect, put on and remove, use, and check the seals of the respirator;
  - (v) What the procedures are for maintenance and storage of the respirator;
  - (vi) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
  - vii) The general requirements of this section.
- (2) Training shall be conducted in a manner that is understandable to the employee.
- (3) The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.
- (5) Retraining shall be administered annually and when the following situations occur:
- (i) Changes in the workplace or the type of respirator render previous training obsolete;
  - ii) Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
  - (iii) Any other situation arises in which retraining appears necessary to ensure safe respirator use.

1910.139(e)(2) through (4) and (5)(i)

(2) the correct respirator shall be specified for each job. The respirator type is usually specified in the work procedures by a qualified individual supervising the respiratory protective program. The individual issuing them shall be adequately instructed to insure that the correct respirator is issued. Each respirator permanently assigned to an individual should be durably marked to indicate to whom it was assigned. This mark

shall not affect the respirator performance in any way. The date of issuance should be recorded.

(3) Written procedures shall be prepared covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

(4) Respiratory protection is no better than the respirator in use, even though it is worn conscientiously. Frequent random inspections shall be conducted by a qualified individual to assure that respirators are properly selected, used, cleaned, and maintained.

(5) For safe use of any respirator, it is essential that the user be properly instructed in its selection, use, and maintenance. Both supervisors and workers shall be so instructed by competent persons. Training shall provide the men an opportunity to handle the respirator, have it fitted properly, test its face-piece-to face seal, wear it in normal air for a long familiarity period, and, finally, to wear it in a test atmosphere.

(i) Every respirator wearer shall receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. Respirators shall not be worn when conditions prevent a good face seal. Such conditions may be a growth of beard, sideburns, a skull cap that projects under the facepiece, or temple pieces on glasses. Also, the absence of one or both dentures can seriously affect the fit of a facepiece. The worker's diligence in observing these factors shall be evaluated by periodic check. To assure proper protection, the facepiece fit shall be checked by the wearer each time he puts on the respirator. This may be done by following the manufacturer's facepiece fitting instructions.

(1)(ii) All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary.

(2)(ii) All employees shall be instructed that caution signs indicate a possible hazard against which proper precautions should be taken.

**Specifications for  
Accident  
Prevention  
Signs and Tags**  
1910.145(c)(1)(ii),  
(2)(ii) and (3)

(3) *Safety instruction signs.* Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.

**Permit Required  
Confined Spaces**  
1910.146(g)(1) and  
(2)(i) through (iv)(3)  
and (4) and (k)(1)(i)  
through (iv)

(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 under this section.

(2) Training shall be provided to each affected employee:

(i) Before the employee is first assigned duties under this section;

(ii) Before there is a change in assigned duties;

(iii) Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;

(iv) Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required by paragraph (d)(3) of this section or that there are inadequacies in the employees' knowledge or use of these procedures.

(3) The training shall establish employee proficiency in the duties required by this section and shall introduce new or revised procedures, as necessary, for compliance with this section.

(4) The employer shall certify that the training required by paragraphs (g)(1) through (g)(3) of this section 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 their authorized representatives.

(k) *Rescue and Emergency Services.* (1) The following requirements apply to employers who have employees enter permit required confined spaces to perform rescue services.

(i) The 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 required confined spaces.

(ii) Each member of the rescue service shall be trained to perform the assigned rescue duties. Each member of the rescue service shall also receive the training required of authorized entrants under paragraph (g) of this section.

(iii) Each member of the rescue service shall practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, mannequins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces shall, with respect to opening size configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

(iv) Each member of the rescue service shall be trained in basic first-aid and in cardiopulmonary resuscitation (CPR). At least one member of the rescue service holding current certification in first-

aid and in CPR shall be available.

**The Control of  
Hazardous  
Energy  
(lockout/tagout)**  
1910.147(a)(3)(ii);  
(4)(i)(D); (7)(i)(A)  
through (C); (ii)(A)  
through (F); (iii)(A)  
through (C)(iv) and  
(8)

(ii) When other standards in this part require the use of lockout or tagout, they shall be used and supplemented by the procedural and training requirements of this section.

(4) *Energy control procedure.* (i) 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.

(D) Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section.

(7) *Training and communication.* (i) 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 energy controls are required by employees. The training shall include the following:

(A) Each authorized employee shall receive 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.

(B) Each affected employee shall be instructed in the purpose and use of the energy control procedure.

(C) All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be 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.

(ii) When tagout systems are used, employees shall also be trained in the following limitations of tags:

(A) Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.

(B) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person for it, and it is never to be bypassed, ignored, or otherwise defeated.

(C) Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

(D) Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

(E) Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

(F) Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

(iii) *Employee retraining.* (A) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

(B) Additional retraining shall also be conducted whenever a periodic inspection under paragraph (c)(6) of this section reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the knowledge or use of the energy control procedures.

(C) The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

(iv) 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.

Lockout or Tagout  
Devices Removed  
1910.147(e)(3)

(8) *Energy isolation.* Implementation of lockout or the tagout system shall be performed only by authorized employees.

(3) *Lockout or tagout devices removal.* Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. *Exception to paragraph (e)(3):* When the authorized employee who applied the lock-out 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 provides equivalent safety to the removal of the device by the authorized employee who applied it.

Outside Personnel  
1910.147(f)(2)(i)

(i) The on-site employer shall ensure that his/her personnel understand and comply with restrictions and prohibitions of the outside employer's energy control procedures.

**Medical Services  
and  
First-Aid**  
1910.151(a) and  
(b)

(a) The employer shall ensure the ready availability of personnel for advice and consultation on matters of plant health.

(b) In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first-aid. First-aid supplies approved by the

consulting physician shall be readily available.

**Fire Protection**  
1910.155(c)(iv)  
(41)

(41) “Training” means the process of making proficient through instruction and hands-on practice in the operation of equipment, including respiratory protection equipment, that is expected to be used and in the performance of assigned duties.

**Fire Brigades**  
1910.156(b)(1)

(b) *Organization*—(1) *Organizational statement*. The employer shall prepare and maintain a statement or written policy which establishes the existence of a fire brigade; the basic organizational structure; the type, amount, and frequency of training to be provided to fire brigade members; the expected number of members in the fire brigade; and the functions that the fire brigade is to perform at the workplace.

The organizational statement shall be available for inspection by the Assistant Secretary and by employees or their designated representatives.

Training and  
Education  
1910.156(c)(1)  
through  
(4)

(c) *Training and education*. (1) The employer shall provide training and education for all fire brigade members commensurate with those duties and functions that fire brigade members are expected to perform. Such training and education shall be provided to fire brigade members before they perform fire brigade emergency activities. Fire brigade leaders and training instructors shall be provided with training and education which is more comprehensive than that provided to the general membership of the fire brigade.

(2) The employer shall assure that training and education is conducted frequently enough to assure that each member of the fire brigade is able to perform the member’s assigned duties and functions satisfactorily and in a safe manner so as not to endanger fire brigade members or other employees. All fire brigade members shall be provided with training at least annually. In addition, fire brigade members who are expected to perform interior structural firefighting shall be provided with an education session or training at least quarterly.

(3) The quality of the training and education program for fire brigade members shall be similar to those conducted by such fire training schools as the Maryland Fire and Rescue Institute; Iowa Fire Service Extension; West Virginia Fire Service Extension; Georgia Fire Academy; New York State Department, Fire Prevention and Control; Louisiana State University Firemen Training Program; or Washington State’s Fire Service, Training Commission for Vocational Education. (for example, for the oil refinery industry, with its unique hazards, the training and education program for those fire brigade members shall be similar to those conducted by brigade members shall be similar

to those conducted by Texas A & M University, Lamar University, Reno Fire School, or the Delaware State Fire School

(4) The employer shall inform fire brigade members about special hazards such as storage and use of flammable liquids and gases, toxic chemicals, radioactive sources, and water reactive substances, to which they may be exposed during fire and other emergencies. The fire brigade members shall also be advised of any changes that occur in relation to the special hazards. The employer shall develop and make available for inspection by fire brigade members, written procedures that describe the actions to be taken in situations involving the special hazards and shall include these in the training and education program.

1910.157(g)(1),  
(2), and  
(4)

(g) *Training and education.* (1) Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting.

(2) The employer shall provide the education required in paragraph (g)(1) of this section upon initial employment and at least annually thereafter.

(4) The employer shall provide the training required in paragraph (g)(3) of this section upon initial assignment to the designated group of employees and at least annually thereafter.

1910.158(e)(2)  
(vi)

(vi) The employer shall designate trained persons to conduct all inspections required under this section.

**Fixed  
Extinguishing  
Systems**  
1910.160(b)(10)

(10) The employer shall train employees designated to inspect, maintain, operate, or repair fixed extinguishing systems and annually review their training to keep them up-to-date in the functions they are to perform.

**Fire Detection  
Systems**  
1910.164(c)(4)

(4) The employer shall assure that the servicing, maintenance and testing of fire detection systems, including cleaning and necessary sensitivity adjustments, are performed by a trained person knowledgeable in the operations and functions of the system.

**Employee Alarm Systems**  
1910.165(d)(5)

(d) *Maintenance and testing.* (5) The employer shall assure that the servicing, maintenance, and testing of employee alarms are done by persons trained in the designed operation and functions necessary for reliable and safe operation of the system.

**Servicing of Multi-Piece and Single-Piece Rim Wheels**  
1910.177(c)(1)(i) through (iii);  
(2)(i) through (viii) and (3)  
Includes single piece wheels per Federal Register of February 3, 1984 (pp. 4338-4352) but not automobile or truck tires marked "LT."

c) *Employee training.* (1) The employer shall provide a training program to train all employees who service rim wheels in the hazards involved in servicing those rim wheels and the safety procedures to be followed.

(i) The employer shall assure that no employee services any rim wheel unless the employee has been trained and instructed in correct procedures of servicing the rim type being serviced, and in procedures described in paragraphs (f) and (g) of this section.

(ii) Information to be used in the training program shall include at a minimum, the applicable data contained in the charts, rim manuals, and the contents of this standard.

(iii) Where an employer knows or has reason to believe that any of his employees is unable to read and understand the charts or rim manual, the employer shall assure that the employee is instructed concerning the contents of the charts and rim manual in a manner which the employee is able to understand.

(2) The employer shall assure that each employee demonstrates and maintains the ability to service multi-piece rim wheels safely, including performance of the following tasks:

(i) Demounting of tires (including deflation);

(ii) Inspection and identification of rim wheel components;

(iii) Mounting of tires (including inflation within a restraining device or other safeguards required by this section);

(iv) Use of the restraining device or barrier, and other equipment required by this section;

(v) Handling of rim wheels;

(vi) Inflation of tire when a single piece rim wheel is mounted on a vehicle;

(vii) An understanding of the necessity of standing outside the trajectory both during the inflation of the tire and during inspection of the rim wheel following inflation; and

(viii) Installation and removal of rim wheels.

(3) The employer shall evaluate each employee's ability to perform these tasks and to service rim wheels safely and shall provide additional training as necessary to assure that each employee maintains his or her proficiency.

1910.177(f)(1);  
(2)(i)  
and (ii) and (3)  
through  
(11)

(f) *Safe operating procedure—multi-piece rim wheels.* The employer shall establish a safe operating procedure for servicing multi-piece rim wheels and shall assure that employees are instructed in and follow that procedure. The procedure shall include at least the following elements:

- (1) Tires shall be completely deflated before demounting by removal of the valve core.
- (2) Tires shall be completely deflated by removing the valve core before a rim wheel is removed from the axle in either of the following situations:
  - (i) When the tire has been driven underinflated at 80% or less of its recommended pressure, or
  - (ii) When there is obvious or suspected damage to the tire or wheel components.
- (3) Rubber lubricant shall be applied to bead and rim mating surfaces during assembly of the wheel and inflation of the tire, unless the tire or wheel manufacturer recommends against it.
- (4) If a tire on a vehicle is underinflated but has more than 80% of the recommended pressure, the tire may be inflated while the rim wheel is on the vehicle provided remote control inflation equipment is used, and no employees remain in the trajectory during inflation.
- (5) Tires shall be inflated outside a restraining device only to a pressure sufficient to force the tire bead onto the rim ledge and create an airtight seal with the tire and bead.
- (6) Whenever a rim wheel is in a restraining device the employee shall not rest or lean any part of his body or equipment on or against the restraining device.
- (7) After tire inflation, the tire and wheel components shall be inspected while still within the restraining device to make sure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, the tire shall be deflated by removal of the valve core before the adjustment is made.
- (8) No attempt shall be made to correct the seating of side and lock rings by hammering, striking or forcing the components while the tire is pressurized.
- (9) Cracked, broken, bent or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated.
- (10) Whenever multi-piece rim wheels are being handled, employees shall stay out of the trajectory unless the employer can demonstrate that performance of the servicing makes the employee's presence in the trajectory necessary.
- (11) No heat shall be applied to a multi-piece wheel or wheel component.

1910.177(g)(1)  
through  
(12)

- (g) *Safe operating procedure—single piece rim wheels.* The employer shall establish a safe operating procedure for servicing single piece rim wheels and shall assure that employees are instructed in and follow that procedure. The procedure shall include at least the following elements:
- (1) Tires shall be completely deflated by removal of the valve core before demounting.
  - (2) Mounting and demounting of the tire shall be done only from the narrow ledge side of the wheel. Care shall be taken to avoid damaging the tire beads while mounting tires on wheels. Tires shall be mounted only on compatible wheels of matching bead diameter and width.
  - (3) Nonflammable rubber lubricant shall be applied to bead and wheel mating surfaces before assembly of the rim wheel, unless the tire or wheel manufacturer recommends against the use of any rubber lubricant.
  - (4) If a tire changing machine is used, the tire shall be inflated only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.
  - (5) If a bead expander is used, it shall be removed before the valve core installed and as soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat).
  - (6) Tires may be inflated only when contained within a restraining device, positioned behind a barrier or bolted on the vehicle with the lug nuts fully tightened.
  - (7) Tires shall not be inflated when any flat, solid surface is in the trajectory and within one foot of the sidewall.
  - (8) Employees shall stay out of the trajectory when inflating a tire.
  - (9) Tires shall not be inflated to more than the inflation pressure stamped in the sidewall unless a higher pressure is recommended by the manufacturer.
  - (10) Tires shall not be inflated above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange.
  - (11) No heat shall be applied to a single piece wheel.
  - (12) Cracked, broken, bent, or otherwise damaged wheels shall not be reworked, welded, brazed, or otherwise heated.

**Powered  
Industrial  
Trucks**  
1910.178(1)

- (l) *Operator training.* Only trained and authorized operators shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks.

**Powered  
Industrial  
Trucks**

1910.178(l)(1)(l)  
and (ii);  
(2)(l)(A) and  
(B)(ii) and  
(iii); (3)(l)(A)  
through  
(M); (ii)(A)  
through (l)  
(iii); (4)(l) and  
(ii)(A)  
through (E);  
(iii)(5),  
(6), and (7)

(l) *Operator training.* (1) *Safe operation.* (l) The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this paragraph.

(ii) Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer shall ensure that each operator has successfully completed the training required by this paragraph (l), except as permitted by paragraph (l)(5).

(2) *Training program implementation* (l) Trainees may operate a powered industrial truck only:

(A) Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and

(B) Where such operation does not endanger the trainee or other employees.

(ii) Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, videotape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

(iii) All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.

(3) *Training program content.* Powered industrial truck operators shall receive initial training in the following topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer's workplace. (l) Truck-related topics:

(A) Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;

(B) Differences between the truck and the automobile;

(C) Truck controls and instrumentation: where they are located, what they do, and how they work;

(D) Engine or motor operation;

(E) Steering and maneuvering;

(F) Visibility (including restrictions due to loading);

(G) Fork and attachment adaptation, operation, and use limitations;

(H) Vehicle capacity;

(I) Vehicle stability;

(J) Any vehicle inspection and maintenance that the operator will be required to perform;

- (K) Refueling and/or charging and recharging of batteries;
- (L) Operating limitations;
- (M) Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
- (ii) Workplace related topics:
  - (A) Surface conditions where the vehicle will be operated;
  - (B) Composition of loads to be carried and load stability;
  - (C) Load manipulation, stacking, and unstacking;
  - (D) Pedestrian traffic in areas where the vehicle will be operated;
  - (E) Narrow aisles and other restricted places where the vehicle will be operated;
  - (F) Hazardous (classified) locations where the vehicle will be operated;
  - (G) Ramps and other sloped surfaces that could affect the vehicle's stability;
  - (H) Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
  - (I) Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.
- (iii) The requirements of this section.
- (4) *Refresher training and evaluation*
  - (i) Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by paragraph (I)(4)(ii) to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.
  - (ii) Refresher training in relevant topics shall be provided to the operator when:
    - (A) The operator has been observed to operate the vehicle in an unsafe manner;
    - (B) The operator has been involved in an accident or nearmiss incident;
    - (C) The operator has received an evaluation that reveals that the operator is not operating the truck safely;
    - (D) The operator is assigned to drive a different type of truck;or
    - (E) A condition in the workplace changes in a manner that could affect safe operation of the truck.
  - (iii) An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.
- (5) *Avoidance of duplicative training.* If an operator has previously received training in a topic specified in paragraph (I)(3) of this section, and such training is appropriate to the working conditions encountered, additional training in that topic

topic is not required if the operator has been evaluated and found competent to operate the truck safely.

(6) *Certification.* The employer shall certify that each operator has been trained and evaluated as required by this paragraph (l). Certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

(7) *Dates.* The employer shall ensure that operators of powered industrial truck are trained, as appropriate, by the following dates: (A) If the employee was hired prior to December 1, 1999, the initial training and evaluation of that employee must be completed by December 1, 1999. (B) If the employee was hired after December 1, 1999, the initial training and evaluation of that employee must be completed before the employee is assigned to operate a powered industrial truck.

**Moving the Load**

1910.179(n)(3)  
(ix)

(ix) When two or more cranes are used to lift a load, one qualified responsible person shall be in charge of the operation. He shall analyze the operation and instruct all personnel involved in the proper positioning, rigging of the load, and the movements to be made.

1910.179(o)(3)

(3) *Fire extinguishers.* The employer shall insure that operators are familiar with the operation and care of fire extinguishers provided.

**Truck Cranes**

1910.180(i)(5)(ii)

(ii) Operating and maintenance personnel shall be made familiar with the use and care of the fire extinguishers provided.

**Mechanical Power Presses**

1910.217(e)(3)  
1910.217(f)(2)

(3) *Training of maintenance personnel.* It shall be the responsibility of the employer to insure the original and continuing competence of personnel caring for, inspecting, and maintaining power presses.

(2) *Instruction to operators.* The employer shall train and instruct the operator in the safe method of work before starting work on any operation covered by this section. The employer shall insure by adequate supervision that correct operating procedures are being followed.

**Mechanical Power Presses—Instructions to Operators**

1910.217(e)(2)

(2) *Instruction to operators.* The employer shall train and instruct the operator in the safe method of work before starting work on any operation covered by this section. The employer shall insure by adequate supervision that correct operating procedures are being followed.

Training of  
Maintenance  
personnel  
1910.217(e)(3)

(3) *Training of Maintenance personnel.* It shall be responsibility of the employer to insure the original and continuing competence of personnel caring for, inspecting, and maintaining power presses.

**Operator  
Training**  
1910.217(H)(13)  
(i)(A) through (E)  
and (ii)

(3) *Training of Maintenance personnel.* It shall be responsibility of the employer to insure the original and continuing competence of personnel caring for, inspecting, and maintaining power presses.

(i) The operator training required by paragraph (f)(2) of this section shall be provided to the employee before the employee initially operates the press and as needed to maintain competence, but not less than annually thereafter. It shall include instruction relative to the following items for presses used in the PSDI mode:

(A) The manufacturer's recommended test procedures for checking operation of the presence sensing device. This shall include the use of the test rod required by paragraph (h)(10)(i) of this section.

(B) The safety distance required.

(C) The operation, function and performance of the PSDI mode.

(D) The requirements for hand tools that may be used in the PSDI mode.

(E) The severe consequences that can result if he or she attempts to circumvent or bypass any of the safeguard or operating functions of the PSDI system.

(ii) The employer shall certify that employees have been trained by preparing a certification record which includes the identity of the person or the person who conducted the training, and the date the training was completed. The certification record shall be prepared at the completion of training and shall be maintained on file for the duration of the employee's employment. The certification record shall be made available upon request to the Assistant Secretary for Occupational Safety and Health.

**Forging  
Machines**  
1910.218(a)(2)  
(iii)

(2) *Inspection and maintenance.* It shall be the responsibility of the employer to maintain all forge shop equipment in a condition which will ensure continued safe operation. This responsibility includes:

(iii) Training personnel for the proper inspection and maintenance of forging machinery and equipment.

**Welding,  
Cutting, and  
Brazing—  
General Req.**  
1910.252(a)(2)  
(xiii)(C)

(xiii) *Management.* Management shall recognize its responsibility for the safe usage of cutting and welding equipment on its property and:  
(C) Insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.

**Oxygen—Fuel  
Gas Welding  
and Cutting**  
1910.253(a)(4)

(4) *Personnel.* Workmen in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems shall be instructed by their employers for this important work before being left in charge. Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems shall be readily available.

**Arc Welding  
and Cutting**  
1910.254(a)(3)

(3) *Instruction.* Workmen designated to operate arc welding equipment shall have been properly instructed and qualified to operate such equipment as specified in paragraph (d) of this section.

**Resistance  
Welding**  
1910.255(a)(3)

(3) *Personnel.* Workmen designated to operate resistance welding equipment shall have been properly instructed and judged competent to operate such equipment.

**Content of  
Training**  
1910.332(b)(1)

(b) *Content of training.* (1) *Practices addressed in this standard.* Employees shall be required by §§1910.331 through 1910.335 that pertain to their respective job assignments.

**Asbestos**  
1910.1001(j)(7)  
(i) through (iii)(A)  
through (H)

(j) *Communication of hazards to employees.* (7) *Employee information and training.* (i) The employer shall institute a training program for all employees who are exposed to airborne concentrations of asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals at or above the action level and ensure their participation in the program.  
(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.  
(iii) The training program shall be conducted in a manner which the employee is able to understand. The employer shall ensure that each employee is informed of the following:  
(A) The health effects associated with asbestos exposure;  
(B) The relationship between smoking and exposure;  
(C) The quantity, location, manner of use, release, and specific nature of operations which could result in exposure to asbestos;

- (D) The engineering controls and work practices associated with the employee's job assignment;
- (E) The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used;
- (F) The purpose, proper use, and limitations of respirators and protective clothing;
- (G) The purpose and a description of the medical surveillance program required by paragraph (I) of this section;
- (H) The content of this standard.

**4-Nitrobiphenyl**

1910.1003(e)(5)

(i)(a) through  
(h)(i) and (ii)**Alpha-****Naphthylamine**

1910.1004(e)(5)

(i)(a) through  
(h)(i) and (ii)**Methyl****Chloromethyl  
Ether**

1910.1006(e)(5)

(i)(a) through  
(h)(i) and (ii)**3,3'-Dichloro-  
benzidine****(and its salts)**

1910.1007(e)(5)

(i)(a) through  
(h)(i) and (ii)**Bis-****Chloromethyl  
Ether**

1910.1008(e)(5)

(i)(a) through  
(h)(i) and (ii)**Beta-****Naphthylamine**

1910.1009(e)(5)

(i)(a) through  
(h)(i) and (ii)

- (i) Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to:
  - (a) The nature of the carcinogenic hazards of N-Nitrobiphenyl, and others listed at left, including local and systemic toxicity;
  - (b) The specific nature of the operation involving 4-Nitrobiphenyl which could result in exposure;
  - (c) The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination;
  - (d) The purpose for and application of decontamination practices and purposes;
  - (e) The purpose for and significance of emergency practices and procedures;
  - (f) The employee's specific role in emergency procedures;
  - (g) Specific information to aid the employee in recognition and evaluation of conditions and situations which may result in the release of 4-Nitrobiphenyl;
  - (h) The purpose for and application of specific first-aid procedures and practices;

**Benzidine**

1910.1010(e)(5)(  
i)(a) through  
(h)(i) and (ii)

**4-**

**Aminodiphenyl**

1910.1011(e)(5)  
(i)(a) through  
(h)(i) and (ii)

**Ethyleneimine**

1910.1012(e)(5)  
(i)(a)  
through (h)(i)  
and (ii)

**Beta-**

**Propiolactone**

1910.1013(e)(5)(  
i)(a) through  
(h)(i) and (ii)

**2-**

**Acetylaminoflu  
orene**

1910.1014(e)(5)(  
i)(a)  
through (h)(i)  
and (ii)

**4-**

**Dimethylamino  
azobenzene**

1910.1015(e)(5)(  
i)(a)  
through (h)(i)  
and (ii)

**N-**

**Nitrosodimethyl  
amine**

1910.1016(e)(5)(  
i) (a)  
through (h)(i)  
and (ii)

**Vinyl Chloride**  
1910.1017(j)(1)  
(i) through (ix)

- (j) *Training.* Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use.
- (1) The program shall include:
- (i) The nature of the health hazard from chronic exposure to vinyl chloride including specifically the carcinogenic hazard;
  - (ii) The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps;
  - (iii) The purpose for, proper use of, and limitations of respiratory protective devices;
  - (iv) The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps;
  - (v) The purpose for and a description of the monitoring program;
  - (vi) The purpose for, and a description of, the medical surveillance program;
  - (vii) Emergency procedures;
  - (viii) Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and
  - (ix) A review of this standard at the employee's first training and indoctrination program, and annually thereafter.

**Inorganic Arsenic**  
1910.1018(o)(1)  
(i) and (ii)(A) through (F) and (2)(i) and (ii)

- (1) *Training program.* (i) The employer shall institute a training program for all employees who are subject to exposure to inorganic arsenic above the action level without regard to respirator use, or for whom there is a possibility of skin or eye irritation from inorganic arsenic. The employer shall assure that those employees participate in the training program.
- (ii) The training program shall be provided by October 1, 1978, for employees covered by this provision, at the time of initial assignment for those subsequently covered by this provision, and shall be repeated at least quarterly for employees who have optional use of respirators and at least annually for other covered employees thereafter, and the employer shall assure that each employee informed of the following:
- (A) The information contained in Appendix A;
  - (B) The quantity, location, manner of use, storage, sources of exposure, and the specific nature of operations which could result in exposure to inorganic arsenic as well as any necessary protective steps;

- (C) The purpose, proper use, and limitations of respirators;
- (D) The purpose and a description of the medical surveillance program as required by paragraph (n) of this section;
- (E) The engineering controls and work practices associated with the employee's job assignment; and
- (F) A review of this standard.

(2) *Access to training materials.* (i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

## **Lead**

1910.1025(l)(1)  
(i) through (v)(A)  
through (G)(2)(i)  
through (iii)

(i) Each employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the content of Appendices A and B of this regulation.

(ii) The employer shall institute a training program for and assure the participation of all employees who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritation exists.

(iii) The employer shall provide initial training by 180 days from the effective date. Editor's Note: OSHA's lead standard became effective February 1, 1979 for those employees covered by paragraph (l)(1)(ii) on the standard's effective date and prior to the time of initial job assignment for those employees subsequently covered by this paragraph.

(iv) The training program shall be repeated at least annually for each employee.

(v) The employer shall assure that each employee is informed of the following:

- (A) The content of this standard and its appendices;
- (B) The specific nature of the operations which could result in exposure to lead above the action level;
- (C) The purpose, proper selection, fitting, use, and limitations of respirators;
- (D) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females).
- (E) The engineering controls and work practices associated with the employee's job assignment;
- (F) The contents of any compliance plan in effect; and
- (G) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should

not be used at all except under the direction of a licensed physician;

(2) Access to information and training materials.

(i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

(iii) In addition to the information required by paragraph (l)(1)(v), the employer shall include as part of the training program, and shall distribute to employees, any materials pertaining to the *Occupational Safety and Health Act*, the regulations issued pursuant to that Act, and this lead standard, which are made available to the employer by the Assistant Secretary.

**Cadmium**

1910.1027(m)(4)

(i) through (iii)

(A) through

(H) and

(m)(4)(iv)(A)

and (B)

(4) *Employee information and training.* (i) The employer shall institute a training program for all employees who are potentially exposed to cadmium, assure employee participation in the program, and maintain a record of the contents of such a program.

(ii) Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

(iii) The employer shall make the training program understandable to the employee and assure that each employee is informed of the following:

(A) The health hazards associated with cadmium exposure, with special attention to the information incorporated in appendix A of the standard;

(B) The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the permissible exposure limits (PELs);

(C) The engineering and work practices associated with the employee's job assignment;

(D) The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

(E) The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing;

(F) The purpose and a description of the medical surveillance program required by paragraph (I) of the standard's training section;

(G) The contents of the training section and the appendices of the cadmium standard;

(H) The employees' rights of access to records under the Access to Employee Exposure and Medical Records rule, 29 CFR 1910.20.

(m)(4)(iv) Additional access to information and training programs and materials.

(A) The employer shall make a copy of this section and its appendices readily available without cost to all affected employees and shall provide a copy if requested.

(B) The employer shall provide to the Assistant Secretary or the Director, upon request, all materials relating to the employee information program.

**Benzene**  
1910.1028(j)(3)  
(i) through (iii)(A)  
and (B)

(3) *Information and training.* (i) The employer shall provide employees with information and training at the time of their initial assignment to a work area where benzene is present. If exposures are above the action level, employees shall be provided with information and training at least annually thereafter.

(ii) The training program shall be in accordance with the requirements of 29 CFR 1910.1200(h)(1) and (2), and shall include specific information on benzene for each category of information included in that section.

(iii) In addition to the information required under 29 CFR 1910.1200, the employer shall:

(A) Provide employees with an explanation of the contents of this section, including Appendices A and B, and indicate to them where the standard is available; and,

(B) Describe the medical surveillance program required under paragraph (i) of this section, and explain the information contained in Appendix C.

**Coke Oven Emissions**  
1910.1029(k)(1)  
(i) through (iv)(a)  
through (e) and  
(k)(2)(i) and (ii)

(1) *Training program.* (i) The employer shall institute a training program for employees who are employed in the regulated area and shall assure their participation.

(ii) The training program shall be provided as of January 27, 1977 for employees who are employed in the regulated area at that time or at the time of initial assignment to a regulated area.

(iii) The training program shall be provided at least annually for all employees who are employed in the regulated area, except that training regarding the occupational safety and health hazards associated with exposure to coke oven emissions and the purpose, proper use, and limitations of respiratory protective devices shall be provided at least quarterly until January 20, 1978.

(iv) The training program shall include informing each employee of:

(a) The information contained in the substance information sheet for coke oven emissions (Appendix A);

(b) The purpose, proper use, and limitations of respiratory protective devices required in accordance with paragraph (g) of this section;

(c) The purpose for and a description of the medical surveillance program required by paragraph (j) of this section including information on the occupational safety and health hazards associated with exposure to coke oven emissions;

(d) A review of all written procedures and schedules required under paragraph (f) of this section; and

(e) A review of this standard.

(2) *Access to training materials.* (i) The employer shall make a copy of this standard and its appendices readily available to all employees who are employed in the regulated area.

(ii) The employer shall provide upon request all materials relating to the employee information and training program to the Secretary and the Director.

### **Bloodborne Pathogens**

1910.1030(g)(2)  
(i); (ii)(A) through (C); (iii) through (vii)(A) through (N); (viii) and (ix)(A) through (C)

(2) *Information and Training.* (i) 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.

(ii) Training shall be provided as follows:

(A) At the time of initial assignment to tasks where occupational exposure may take place;

(B) Within 90 days after the effective date of the standard; and

(C) At least annually thereafter.

(iii) For employees who have received training on bloodborne pathogens in the year preceding the effective date of the standard, only training with respect to the provisions of the standard which were not included need be provided.

(iv) Annual training for all employees shall be provided within one year of their previous training.

(v) Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational

exposure. The additional training may be limited to addressing the new exposures created.

(vi) Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.

(vii) The training program shall contain at a minimum the following elements:

(A) An accessible copy of the regulatory text of this standard and an explanation of its contents;

(B) A general explanation of the epidemiology and symptoms of bloodborne diseases;

(C) An explanation of the modes of transmission of bloodborne pathogens;

(D) An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;

(E) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;

(F) An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;

(G) Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;

(H) An explanation of the basis for selection of personal protective equipment;

(I) Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;

(J) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

(K) An explanation of the procedures to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;

(L) Information on the post exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;

(M) An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and

(N) An opportunity for interactive questions and answers with the person conducting the training session.

(viii) The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

(ix) Additional initial training for employees in HIV and HBV laboratories and production facilities. Employees in HIV or HBV research laboratories and HIV or HBV production facilities shall receive the following initial training in addition to the above training requirements:

(A) The employer shall assure that employees demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to work with HIV or HBV.

(B) The employer shall assure that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.

(C) The employer shall provide a training program to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. The employer shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.

**1,2-Dibromo-3-Chloropropane**  
1910.1044(n)(1)  
(i) and (ii)(a)  
through (e) and  
(n)(2)(i) and (ii)

(1) *Training program.* (i) The employer shall institute a training program for all employees who may be exposed to DBCP and shall assure their participation in such a training program.

(ii) The employer shall assure that each employee is informed of the following:

(a) The information contained in Appendix A.

(b) The quantity, location, manner of use, release or storage of DBCP and the specific nature of operations which could result in exposure to DBCP as well as any necessary protective steps;

(c) The purpose, proper use, and limitations of respirators;

(d) The purpose and description of the medical surveillance program required by paragraph (m) of this section; and

(e) A review of this standard, including appendices.

(2) *Access to training materials.* (i) The employer shall make a copy of this standard and its appendices readily available to all affected employees.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

**Acrylonitrile  
(Vinyl  
Cyanide)**

1910.1045(o)(1)  
and (iii)(A)  
through (G) and  
(2)(i) and (ii)

(1) *Training program.* (i) By January 2, 1979, the employer shall institute a training program for and assure the participation of all employees exposed to AN above the action level, all employees whose exposures are maintained below the action level by engineering and work practice controls, and all employees subject to potential skin or eye contact with liquid AN.

(ii) Training shall be provided at the time of initial assignment, or upon institution of the training program, and at least annually thereafter, and the employer shall assure that each employee is informed of the following:

(A) The information contained in Appendices A and B. Editor's Note: See *Federal Register*, Vol. 43, No. 192, Oct. 3, 1978, pp. 45813-45815;

(B) The quantity, location, manner of use, release, or storage of AN, and the specific nature of operations which could result in exposure to AN, as well as any necessary protective steps;

(C) The purpose, proper use, and limitations of respirators and protective clothing;

(D) The purpose and a description of the medical surveillance program required by paragraph (n) of this section;

(E) The emergency procedures developed, as required by paragraph (i) of this section;

(F) Engineering and work practice controls, their function, and the employee's relationship to these controls; and

(G) A review of this standard.

(2) *Access to training materials.* (i) The employer shall make a copy of this standard and its appendices readily available to all affected employees.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

**Ethylene Oxide**

1910.1047(j)(3)  
(i); (ii)(A) through  
(D) and (iii)(A)  
through (D)

(3) *Information and training.* (i) The employer shall provide employees who are potentially exposed to EtO at or above the action level with information and training on EtO at the time of initial assignment and at least annually thereafter.

(ii) Employees shall be informed of the following:

(A) The requirements of this section with an explanation of its contents, including Appendices A and B;

(B) Any operations in their work area where EtO is present;

(C) The location and availability of the written EtO final rule; and

(D) The medical surveillance program required by paragraph (i) of this section with an explanation of the information in Appendix C.

(iii) Employer training shall include at least:

(A) Methods and observations that may be used to detect the presence or release of EtO in the work area (such as monitoring conducted by the employer, continuous monitoring devices, etc.);

(B) The physical and health hazards of EtO;

(C) The measures employees can take to protect themselves from hazards associated with EtO exposure, including specific procedures the employer has implemented to protect employees from exposure to EtO, such as work practices, emergency procedures, and personal protective equipment to be used; and

(D) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and how employees can obtain and use the appropriate hazard information.

**Formaldehyde**  
1910.1048(n)(1)  
through (3)(i)  
and (ii)(A) and  
(B)(iii) through  
(vii)

(n) *Participation.* (1) The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde participate in a training program, except where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training.

(2) *Frequency.* Employers shall provide such information and training to employees at the time of initial assignment, and whenever a new exposure to formaldehyde is introduced into the work. The training shall be repeated at least annually.

(3) *Training program.* The training program shall be conducted in a manner which the employee is able to understand and shall include:

(A) A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde.

(B) instructions to immediately report to the employer the development of any adverse signs or symptoms that the employee suspects is attributable to formaldehyde exposure.

(iii) Description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde in each job;

- (iv) The purpose for, proper use of, and limitations of personal protective clothing and equipment;
- (v) Instructions for the handling of spills, emergencies, and clean-up procedures;
- (vi) An explanation of the importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls; and
- (vii) A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency.

**4,4'**  
**Methylenedianiline**  
1910.1050(k)(3)  
(i) and (ii)(A) and  
(4)(i)(ii)

- (3) *Information and training.* (i) The employer shall provide employees with information and training on MDA in accordance with 29 CFR 1910.1200(h) at the time of initial assignment and at least annually thereafter.
- (ii) In addition to the information required under 29 CFR 1910.1200(h) the employer shall:
- (A) Provide an explanation of the contents of this section, including Appendices A and B, and indicate to employees where a copy of the standard is available;
- (4) *Access to training materials.* (i) The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.
- (ii) The employer shall provide to the Assistant Secretary of Labor and the Director, upon request, all information and training materials relating to the employee information and training program.

**Ionizing  
Radiation  
Testing**  
1910.1096(f)(3)  
(viii)

- (viii) Before placing the system into operation, all employees normally working in the area shall be made acquainted with the signal by actual demonstration at their work locations.

**Posting**  
1910.1096(i)(2)

- (i)(2) All individuals working in or frequenting any portion of a radiation area shall be informed of the occurrence of radioactive materials or of radiation in such portions of the radiation area; shall be instructed in the safety problems associated with exposure to such materials or radiation and in precautions or devices to minimize exposure; shall be instructed in the applicable provisions of this section for the protection of employees from exposure to radiation or radioactive materials; and shall be advised of reports of radiation exposure which employees must request pursuant to the regulations in this section.

**Hazard  
Communication**  
1910.1200(h)(1),  
(2)(i)  
through (iii) and  
(3)(i)  
through (iv)

(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) *Information.* Employees shall be informed of:

(i) The requirements of this section;

(ii) Any operations in their work area where hazardous chemicals are present; and,

(iii) 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) *Training.* Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) 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, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) 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.

**Occupational  
Exposure  
to Hazardous  
Chemicals  
in Laboratories**  
1910.1450(f)(1)  
(2) and  
(f)(4)(i)(A)  
through (c)

(f) *Employee information and training.* (1) The employer shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area.