Federally Mandated Training

API Committee on Training and Development
CMA Training Task Group

API Publication 1200
Third Edition, January 1998

Responsible Care®
A Public Commitment

STEP
Strategies for Today's Environmental Partnership

CHEMICAL MANUFACTURERS ASSOCIATION

1300 Wilson Boulevard
Arlington, VA 22209

American Petroleum Institute

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SCOPE

This document addresses selected health, safety, and environmental regulations of certain federal agencies that may be applicable to refineries, petrochemical plants, chemical plants, and gas-processing plants. The agencies and their regulations include OSHA (29 C.F.R. 1910, general industry standards), EPA (40 C.F.R.), DOT (49 C.F.R.), and NRC (10 C.F.R.). This document does not address all transportation or pipeline regulations or those that may apply offshore.

FOREWORD

On April 6, 1990, the American Petroleum Institute (API) amended its bylaws to incorporate an environmental mission statement and eleven guiding environmental principles. The action renewed and reemphasized the industry's commitment to safe and environmentally sound operations. One of these principles deals specifically with safe plant operations: *To operate our plants and facilities, and to handle our raw materials and products in a manner that protects the environment, and the safety and health of our employees and the public.* This principle has particular relevance in the area of employee training and information transfer, where assurance of safe and environmentally sound operations starts with a properly trained and informed work force.

In November 1988, the Chemical Manufacturers Association (CMA) adopted as a condition of membership an initiative called Responsible Care®: A Public Commitment. The initiative commits member companies to improve performance in response to public concerns about the impact of chemicals on health, safety and environmental quality. There are ten fundamental elements of Responsible Care®, including ten Guiding Principles; six Codes of Management Practices; Code Performance Measures; Self-Evaluations; a Member Material Assistance Network; and a Public Advisory Panel. The implementation of operations training will help achieve compliance with CMA's Responsible Care® Initiative.

The refining, petrochemical, chemical, and gas-processing industries are concerned with the safety and health of their employees, protection of the environment and the well-being of communities surrounding their sites. Examples of API standards and CMA Guidelines that address these issues are API Recommended Practice 750, *Management of Process Hazards*, API/CMA Recommended Practice 2220, *Improving Owner and Contractor Safety Performance*, CMA *Operations Training Guide for Process Safety*, and CMA *Resource Guide for Implementing Process Safety Code of Management Practices.* These and other industry recommendations should be evaluated by those using this Guidance Document.

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Suggested revisions are invited and should be submitted to the Director of the Manufacturing, Distribution and Marketing Department, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005, or CMA's Training Task Group at CMA, 1300 Wilson Boulevard, Arlington, VA 22209.

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SECTION I—EXECUTIVE SUMMARY

Under the auspices of the American Petroleum Institute (API) General Committee of Refining's Central Committee on Training and Development, a Task Force was formed in 1990 to address the needs of refining, petrochemical, and gas-processing companies in their efforts to comply with federally mandated training and information transfer requirements in the most efficient manner. In 1988, The Chemical Manufacturers Association (CMA) adopted an initiative called Responsible Care®: A Public Commitment. The initiative commits member companies to improve performance in response to public concerns about the impact of chemicals on health, safety and environmental quality. The implementation of operations training will help achieve compliance with CMA's Responsible Care® Initiative. In early 1992, the CMA's Engineering and Operations Committee created a training task group. One of the first projects of this group was to review API's work on the Federally Mandated Training Guide and submit additional training models requested by CMA members.

The following Guidance Document has been prepared to

a. Identify employee safety, health, and environmental training and/or information transfer requirements that should meet the federal regulations applicable to the industry.
b. Develop performance-based training and/or information transfer objectives the achievement of which should serve as observable evidence that training has been effective and/or that required information has been provided to the employee.
c. Cite related materials in a manner that should help streamline the development of a training and/or information transfer program or process.

Training and Information Modules included in this Guidance Document, which are generally applicable to the refining, petrochemical, chemical, and gas-processing facilities, specify observable performance criteria to indicate that training or the imparting of information has been successfully completed. These training and information objectives are suggested targets, and they can be used by the trainers to evaluate the efficacy of the communication process. They are not mandated by the regulations, and they are not to be construed as de facto requirements by the employer, the employees, or federal or state agencies. Since sites vary significantly in worker population, plant environment, information networks, training delivery systems, company culture, and the like, the methods of delivering the training or information to accomplish identified worker-performance objectives is best left to the employer.

If assistance is needed to develop detailed training or information transfer programs, API's District Training and Development Committee and other specialty conferences, held throughout the year, provide a forum for both new and experienced personnel to share information and ideas. Information pertaining to these conferences can be found in Appendix A.

SECTION II—USERS' GUIDE

These Guidelines have been developed to assist refinery, petrochemical, chemical and gas-processing plant training organizations in their efforts to comply with federally mandated training and information transfer requirements. For each identified Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Department of Transportation (DOT), and Nuclear Regulatory Commission (NRC) regulation that requires training and/or information transfer or that refers to "qualified" employees, a module was created to present the training and/or information transfer requirements identified in the regulation.

Organization of Modules

Modules have been grouped into five core curricula:

Module Set A—Work Place Hazards.
Module Set B—Safe Work Practices.
Module Set C—Personal Protective Equipment.
Module Set D—Job-Specific Requirements.
Module Set E—Emergency Response.

A summary of the curricula is included with respective modules. These categories were selected to organize the modules into related areas of training and/or information transfer and are not intended to restrict users of these guidelines in developing their own curriculum. Modules are also listed alphabetically by subject in Index A and numerically by regulatory reference in Index B.

Description of Modules

Each module identifies the primary *Regulatory Reference*, the *Affected Personnel*, or *Who Must Be Trained* and/or receive information, its *Frequency* (when training and/or information transfer is to take place—initially and/or as a refresher), the *Time Required* (if specified in the regulation), and a *Content Overview* (a general description of the training and/or information transfer involved).

A key element of each module is its *Suggested Training Objectives* (or *Information Objectives*). These are written in performance-based language, describing what an employee who has successfully completed the module should know and/or be able to do. To enable measurement of the results of training and/or information transfer, learned behaviors must be observable. Once learned, observable behavior can and should be tested, either orally, in writing, or by demonstration.

An example of a specific regulatory requirement for such documentation and measurement can be found in 29 C.F.R. 1910.119, Process Safety Management of Highly Hazardous Chemicals, paragraph g, subparagraph 3, Training Documentation. This subparagraph states "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."

Since site-to-site differences exist in worker population, plant environment, company culture, and training and/or information transfer delivery systems, it was judged that the selection of methods of delivering training and/or information for the achievement of identified worker-performance objectives was best left to the employer.

This document is intended as guidance only and should not be considered the primary source for compliance with the regulations identified herein. For example, the objectives presented in these guidelines are for the purpose of assisting users of these guidelines in preparing and delivering materials, and not all objectives presented require verification. The actual regulations should be consulted in the development of any materials. These training and information objectives are suggested targets, and can be used by the trainers to evaluate the efficacy of the communication process. They are not mandated by the regulations, and are not to be construed as de facto requirements necessarily by the employer, the employees, or federal or state agencies.

Every effort has been made to not interpret the regulations, as interpretation will vary. Information contained in the modules has, in many cases, been quoted directly. The regulations govern all requirements. An additional source of information for OSHA regulations is *Training Requirements in OSHA Standards and Training Guidelines*, OSHA Publication 2254, 1992.

While not all-inclusive, the last three elements of each module contain helpful references. The first, *Incorporated by Reference*, lists those regulations that are specifically referred to and that impact the training and/or information transfer requirements in the subject regulation. Not all listed references are found in the training portion of the regulation: some may be found in the non-training portion of the regulation. These selected references are listed to assist users, and the list is not meant to be all-inclusive. *Other Regulations with Similar Training/Information Provisions* addresses the overlap that occurs in the law and recognizes that certain training and/or information transfer can satisfy portions of several different regulations. Lastly, *Other Resources* lists references—such as manuals, manufacturers' information, OSHA publications, American National Standards Institute (ANSI) and other standards, related company procedures, and the like—that would be helpful to users of these guidelines.

In case assistance is needed to develop more detailed programs, API's District Training and Development Committee and other specialty conferences, held throughout the year, provide a forum for both new and experienced personnel to share information and ideas. Information pertaining to these conferences can be found in Appendix A. Information on CMA's Training Task Group can be found in Appendix B.

Training Matrix

To assist users of these guidelines in organizing their own curricula and programs, a training matrix in outline form is included in Appendix C. This or a similar document can be an effective management tool in identifying and organizing the scope of location training and/or information transfer.

Training–Related Terminology

Appendix D contains a list of training-related terms that frequently appear in the regulations and these guideline modules. Definitions have been extracted from the regulations and may be helpful.

Organizing and Preparing Mandatory Training and/or Information Transfer Programs

The following suggestions are offered to help users of these guidelines organize and prepare training and/or information transfer programs.

1. Review modules and employee population to determine who needs training and/or information transfer and on what subjects they need it.
2. Review and summarize objectives associated with the subjects identified.

3. Where objectives are closely related or comparable, group these and note the regulations satisfied.
4. Design course materials, training and/or information transfer media, and the like that are directed toward consolidating the objectives. Use of job-related examples is recommended. Worker involvement in the selection of materials and examples can be beneficial as workers are most knowledgeable of workplace conditions.
5. Develop a plan of instruction that ensures that all job-related objectives are included in the training and/or information transfer program.
6. Once the employer has determined that training and/or information transfer has been satisfactorily completed, as indicated by the satisfaction of applicable segments of regulations identified in step 3, the training and/or information transfer should be appropriately documented.

Suggested revisions to these guidelines are invited and should be submitted to the Director of the Manufacturing, Distribution and Marketing Department, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005, or the CMA Training Task Group, 1300 Wilson Boulevard, Arlington, VA 22209.

SECTION III—TRAINING AND INFORMATION MODULES

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[1]Also see 29 C.F.R. 1926.58.

[2]Also see 29 C.F.R. 1926.602.
[3]Nondestructive Testing.

MODULE SET A—WORK PLACE HAZARDS

[1]Also see 29 C.F.R. 1926.58.

Subject	Access to Employee Exposure and Medical Records
Regulatory Reference	29 C.F.R. 1910.20(g)
Affected Employees	Employees who may be exposed to toxic substances or hazardous physical agents.
Frequency	Prior to initial assignment and annually thereafter.
Information Content Overview	Each employer shall inform current employees covered by this section of the following: a. The existence, location, and availability of any records covered by this section; b. The person responsible for maintaining and providing access to records; and c. Each employee's rights of access to these records.
Information Objectives	Upon successful completion, employees will be able to: 1. Understand the requirements of this standard; and 2. Access their medical records.
Incorporated by Reference	NIOSH Registry of Toxic Effects of Chemical Substances (RTECS)
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.1028 Benzene 29 C.F.R. 1910.95 Occupational Noise Exposure/Protection 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910 Subpart Z—Toxic and Hazardous Chemicals
Other Resources	OSHA Publication No. 3110, *Access to Medical and Exposure Records* Company Procedures

Subject	Occupational Noise Exposure
Regulatory Reference	29 C.F.R. 1910.95(k)
Who Must Be Trained	All employees who are exposed to a noise level at or above an 8-hour time-weighted average of 85 decibels (db).
Frequency of Training	Initially and annually thereafter.
Content Overview	1. The effects of noise on hearing. 2. Purpose, selection, and proper use of and care of various types of hearing protection. 3. The purpose of audiometric testing, and an explanation of test procedures. 4. OSHA standard, and supplementary materials.
Suggested Training Objectives	Upon successful completion of training, employees will be informed of the following: 1. The effects of noise on hearing; 2. The areas in their facility where hearing protection is required; 3. The purpose of hearing protectors, the various types available, and their use; 4. The advantages, disadvantages, and attenuation of the various types of hearing protectors available; 5. The ability to properly select, fit, use and care for the various hearing protectors available to them; 6. The purpose of audiometric testing and how employees can obtain their test results; and 7. The location and availability of the company written Hearing Conservation Program and OSHA Standard.
Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Written Hearing Conservation Program

Subject	Ionizing Radiation
Regulatory Reference	29 C.F.R. 1910.96(i)
Who Must Be Trained	All individuals working in or frequenting any portion of a radiation area.
Frequency of Training	Not explicitly stated. Upon assignment to a radiation area.
Content Overview	1. Safety problems associated with exposure to radiation. 2. The occurrence of ionizing radiation sources in the workplace. 3. Procedures and devices used to minimize exposure. 4. The employee's right to request radiation exposure reports. 5. Applicable provisions of the regulations for protection of employees from radiation. 6. Reports of radiation exposure which employees request under the standard.
Suggested Training Objectives	Upon successful completion of training, employees will be informed of 1. The location and sources of ionizing radiation which exist in their work area; 2. The safety and health problems associated with exposure to ionizing radiation; 3. The devices available to minimize exposure; 4. Procedures which must be followed in the event of a radiation emergency; 5. The warning devices and signs used in the facility; and 6. The employee's right to request radiation reports.
Incorporated by Reference	10 C.F.R. Part 20 Standards for Protection Against Radiation Atomic Energy Act 1954 42 USC 2011 et seq. Section 274(b) (42USC 2021(b))
Other Regulations with Similar Training/Information Provisions	10 C.F.R. Part 19 Notices, Instructions, and Reports to Workers; Inspections 29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Procedures

Subject	Specifications for Accident Prevention Signs and Tags
Regulatory Reference	29 C.F.R. 1910.145(c)(1)(ii), (2)(ii) and (3)
Who Must Be Trained	All employees.
Frequency of Training	Not specifically stated.
Content Overview	Basic employee training will include the following elements: 1. Danger signs indicate immediate danger and special precautions are necessary; 2. Cautions signs indicate a possible hazard against which proper precautions should be taken; and 3. Safety instruction signs are used where there is a need for general instructions relative to safety measures.
Suggested Training Objectives	Upon successful completion of training, employees will be able to 1. Identify signs and tags by color, shape, pictograph, and/or signal words used on site; 2. Describe what hazard is present and what level of hazard exists; and 3. Describe precautions to take for personal protection as indicated by signs.
Incorporated by Reference	NFPA 704 ID of Materials DOT49 C.F.R. 172.500 Subpart F American National Standard Z53.1-1967
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.37 Means of Egress 29 C.F.R. 1910.66 Powered Platforms 29 C.F.R. 1910.68 Man Lifts 29 C.F.R. 1910.95 Hearing Conservation 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910.97 Non-ionizing Radiation 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.144 Safety Color Code For Marking Physical Hazards 29 C.F.R. 1910.147 Control of Hazardous Energy Sources (Lockout/Tagout) 29 C.F.R. 1910.179 Overhead and Gantry Cranes 29 C.F.R. 1910.252 Welding, Cutting, & Brazing 29 C.F.R. 1910.1001 Asbestos 29 C.F.R. 1910.1028 Benzene 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Internal Company Labeling Procedures

Subject	Asbestos—Communication of Hazards to Employees: Employee Information and Training
Regulatory Reference	29 C.F.R. 1910.1001(j)(5) [Exposure to asbestos in construction work is covered by 29 C.F.R. 1926.58]
Who Must Be Trained	All employees who are exposed to airborne concentrations of asbestos at or above the action level and/or excursion limit. (Action level = airborne concentration of 0.1 fiber per cc (f/cc) on 8-hour time-weighted average. Excursion limit = 1.0 f/cc over sampling period of 30 minutes.)
Frequency of Training	Prior to or at the time of initial assignment and at least annually thereafter.
Content Overview	Training Program must provide the following information: 1. Health effects of exposure to asbestos and the relationship between exposure to asbestos and smoking in producing lung cancer; 2. The quantity, location, release, manner of use and storage of asbestos; 3. The specific nature of operations that could result in exposure; 4. Engineering controls and work practices associated with employee's job assignment; 5. Respiratory protection; 6. Purpose and description of medical surveillance program; 7. Complete copy of the standard, including appendices; 8. Specific procedures implemented to protect employees from asbestos exposure, including work practices, emergency and cleanup procedures, and personal protective equipment; 9. Names, addresses, and phone numbers of organizations who conduct smoking cessation programs; 10. Information on self-help smoking cessation programs; and 11. Requirements for posting signs and affixing labels and the meanings of such signs and labels.
Suggested Training Objectives	Upon successful completion, employees will be informed of the following: 1. The hazards of asbestos, including health effects of exposure, specific health problems, and methods of entry of asbestos into body; 2. The relationship between smoking and asbestos exposure; 3. What the Permissible Exposure Limit is for asbestos and how monitoring is conducted; 4. The location of any asbestos-containing material in the employee's work area; 5. Engineering controls and work practices used when working around asbestos; 6. Procedures to be implemented to protect employees during emergency and cleanup procedures; 7. The type of respirator and protective clothing to be used in working around asbestos; 8. Hygiene practices used when dealing with asbestos; 9. The housekeeping procedures required when dealing with asbestos; 10. The elements required in a medical surveillance program for asbestos; and 11. Where the appropriate information on asbestos is available for inspection. Supervisors, in addition to completing the worker's requirements, will be able to explain 1. The operation, maintenance, and inspection of engineering controls; 2. The respirator program; 3. Housekeeping procedures for asbestos cleanup; 4. Hygiene facilities and procedures required; and 5. This training outline and the content of each area.

Incorporated by Reference	29 C.F.R. 1910.20 Access to Medical Records 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1926.58 Asbestos (Construction Work) 40 C.F.R. 61 Subpart M—National Emission Standard for Asbestos NIH Publication No. 89-1647
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	OSHA Publication 3095, *Asbestos Standard for General Industry* OSHA Publication 3096, *Asbestos Standard for Construction*

Subject	Hazard Communication
Regulatory Reference	29 C.F.R. 1910.1200(h)
Who Must Be Trained	All employees that may be exposed to hazardous chemicals, as defined by 29 C.F.R. 1910.1200, either under normal conditions or foreseeable emergencies.
Frequency of Training	Upon initial assignment and whenever a new hazard is introduced into the employee's work area. Retraining is not specified here but is required under other regulation such as 29 C.F.R. 1910.120(e)(8).
Content Overview	1. *Information*. Employees must be informed of the following: a. The requirements of the hazard communication standard; b. Any operations in their work area where hazardous chemicals are present; and c. The location and availability of the written hazard communication program, including the list of hazardous chemicals and required Material Safety Data Sheets. 2. *Training*. Employee training must include a. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area, e.g. i. Monitoring by the employer; ii. Continuous monitoring devices; and iii. Visual appearance or odor of hazardous chemicals when released. b. Physical and health hazards of the chemicals in the work area; c. Measures employees can take to protect themselves from hazards, e.g. i. Appropriate work practices; ii. Emergency procedures; and iii. Personal protective equipment. d. Details of the company's hazard communication program, including i. Explanation of labeling system; ii. Explanation of Material Safety Data Sheets; and iii. How to obtain appropriate hazard information.
Suggested Training Objectives	Upon successful completion of this training the employee will be informed of the following: 1. The company's Hazard Communication Program, including the labeling system, where and how to obtain hazard information, and how to use Material Safety Data Sheets; 2. Knowledge and skills appropriate to their job level on chemical detection, signs of exposure and monitoring for chemical exposure; 3. How to choose and use appropriate personal protective equipment; 4. Measures they can take to prevent exposure to chemical hazards such as work practices and emergency procedures; and 5. The physical and health hazards of the chemicals they may encounter in their work place.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Emergency Plans and Fire Prevention 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response

	29 C.F.R. 1910.133 Respiratory Protection 29 C.F.R. 1910.145 Accident Prevention Signs and Tags 29 C.F.R. 1910.156 Fire Brigades
Other Resources	Company written Hazardous Communication Program and applicable MSDSs OSHA Publication 3084, *Chemical Hazard Communication* OSHA Publication 3111, *Hazard Communication Guidelines for Compliance*

Subject	Training Requirements for Workers Exposed to Acrylonitrile
Regulatory Reference	29 C.F.R. 1910.1045(o)(1) and (2)
Who Must Be Trained	All workers subject to acrylonitrile (AN) above the action level of 1 part per million as calculated on an 8-hour time weighted-average or whose exposures are below action level because of controls or work practices, and all employees subject to skin or eye contact with AN.
Frequency of Training	Initial assignment and annually thereafter.
Content Overview	Content shall include the following: 1. 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; 2. The purpose, proper use, and limitations of respirators and protective clothing; 3. The purpose and a description of the medical surveillance program required by paragraph (n) of the standard; 4. The emergency procedures developed; 5. Engineering and work practice controls, their function, and the employee's relationship to these controls; and 6. A review of the standard and its appendices.
Suggested Training Objectives	Upon successful completion of training, employees will be able to: 1. Identify the quantity, location, manner of use, release, or storage of AN; 2. Identify the specific nature of operations which could result in exposure to AN above the action level; 3. Identify any necessary protective steps to protect against AN exposure; 4. State the purpose and limitations of respirators; 5. Demonstrate the proper selection, fitting and use of respirators; 6. Describe the medical surveillance program; 7. Describe the emergency procedures developed to respond to emergencies involving AN; and 8. Identify the engineering controls and work practices associated with the employee's job assignment to protect against AN exposure.
Incorporated by Reference	29 C.F.R. 1910.132 Personal Protective Equipment 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.141 Sanitation 29 C.F.R. 1910.1020 Medical Records
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.151 Medical Services and First Aid 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company policies and procedures Applicable Material Safety Data Sheets

Subject	Training Requirements for Personnel Working on Electrical Installations with Exposed Live Parts >600 volts
Regulatory Reference	29 C.F.R. 1910.303(h)(2)(i)
Who Must Be Trained	Persons working at electrical installations energized at more than 600 volts and who may be exposed to live parts.
Frequency of Training	None specified in the regulation.
Content Overview	Not specified in regulation. Regulation states that only "qualified" persons may work in such areas. This implies some level of training or expertise in electrical work.
Suggested Training Objectives	See above.
Incorporated by Reference	29 C.F.R. 1910.302 Electric Utilization Systems
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.147(c)(7) Training for Employees Involved in Work Requiring Energy Control 29 C.F.R. 1910.269(d) Training Requirements for General Industry Workers who Service or Maintain Machines or Equipment That Require Hazardous Energy Control Procedures 29 C.F.R. 1910.332 Training for Employees who Face a Risk of Electric Shock 29 C.F.R. 1926.950 General Requirements Power Transmission 29 C.F.R. 1926.957 Construction in Energized Substations
Other Resources	Company policies and procedures

MODULE SET B—SAFE WORK PRACTICES

Subject	Process Safety Management of Highly Hazardous Chemicals— Process Operators
Regulatory Reference	29 C.F.R. 1910.119(g)
Who Must Be Trained	Each employee presently involved in operating a covered process and each employee before being involved in operating a newly assigned covered process.
Frequency of Training	1. Initial Training—Prior to a new operating assignment and prior to startup of a modified process (reference paragraph (l), Management of Change, in the standard.) 2. Refresher Training at least every three years, and more often if necessary as determined by the employer in consultation with the employees involved in operating the process.
Content Overview	Initial training should consist of the following: 1. An overview of the process. For example, unit flow, chemistry and process controls; 2. Current and accurate operating and emergency procedures, including the following items as listed in the regulation, paragraph (f): a. Steps for operating phases of: initial startup, normal operation, normal shutdown and startup, temporary operations, emergency operations including emergency shutdowns, and startup following a turnaround or after an emergency shutdown; b. Operating limits including: Consequences of deviation, steps to correct and/or avoid deviations, and safety systems and functions; c. Safety and health considerations, including: Properties and hazards of process chemicals (MSDS), exposure prevention precautions, exposure control measures to be taken if physical contact or airborne exposure occurs, control of raw materials and hazardous chemical inventory levels, and any special or unique hazards; and d. Safety systems and their functions; 3. Training must include emphasis on: a. Specific safety and health hazards; b. Emergency operations including shutdown; and c. Safe work practices applicable to the employee's job tasks. Refresher training should assure that covered employees understand and adhere to current operating procedures.
Suggested Training Objectives	1. Upon successful completion of initial training, employee will understand: a. An overview of the process; b. Safety and health hazards of the job; c. Current and accurate operating and emergency procedures (see paragraph (f) of regulation); d. Where these procedures are located for ready access; and e. Safe work practices. 2. Refresher training: assure employee understands and adheres to the current operating procedures of the process.
Incorporated by Reference	29 C.F.R. 1910.38(a) Emergency Action Plan 29 C.F.R. 1910.252(a) Fire Prevention and Protection (Hot Work Permit)

Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans/Fire Protection 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.146 Permit-Required Confined Spaces 58 Fed. Reg. 4462 (1/14/93) 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Preamble to 29 C.F.R. 1910.119 FR Vol 57, No. 36, 2/24/92, pp. 6380–6384 Appendix D to 29 C.F.R. 1910.119 Company Process Operating Procedures and Safe Work Practices API Recommended Practice 750, *Management of Process Hazards*, First Edition, January 1990 OSHA Publication 3132, *Process Safety Management*, 1992 OSHA Publication 3133, Process Safety Management Guidelines for Compliance, 1992 OSHA Instruction CPL 2-2.45A, *Process Safety Management of Highly Hazardous Chemicals—Compliance Guidelines and Enforcement Procedures*, September 1992 CMA *Operations Training Guide for Process Safety*

Subject	Process Safety Management of Highly Hazardous Chemicals— Process Maintenance Employees
Regulatory Reference	29 C.F.R. 1910.119(j)(3)
Who Must Be Trained	Each employee involved in maintaining the on-going integrity of process equipment. For example, maintenance and inspection personnel.
Frequency of Training	Not specified in standard. A suggested frequency is upon initial assignment or prior to startup of the affected part of the process. (*NOTE*: The standard is silent on "refresher training" for these employees, although the management of change provisions (paragraph l) help ensure that maintenance employees are provided details of process changes that could affect safe job performance.)
Content Overview	Training must include the following: 1. Overview of process and its hazards; and 2. Procedures applicable to the employee's job tasks. Although the regulations do not specify, this could typically include maintenance and inspection of equipment and controls that are critical to preventing or mitigating a catastrophic release of highly hazardous chemicals in the workplace.
Suggested Training Objectives	To assure that the employee can perform the job tasks in a safe manner. Upon successful completion of training, employee should be informed of the following: 1. The overview of the process; and 2. The hazards and procedures applicable to the employee's job tasks.
Incorporated by Reference	29 C.F.R. 1910.38(a) Emergency Action Plan 29 C.F.R. 1910.252(a) Fire Prevention and Protection (Hot Work Permit)
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans/Fire Protection 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.146 Permit-Required Confined Spaces 58 Fed. Reg. 4462 (1/14/93) 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Appendix D to 29 C.F.R. 1910.119 Company Process Operating Procedures and Safe Work Practices API Recommended Practice 750, *Management of Process Hazards*, First Edition, January 1990 OSHA Publication 3132, *Process Safety Management*, 1992 OSHA Publication 3133, *Process Safety Management Guidelines for Compliance*, 1992 OSHA Instruction CPL 2-2.45A, *Process Safety Management of Highly Hazardous Chemicals—Compliance Guidelines and Enforcement Procedures*, September 1992 CMA *Operations Training Guide for Process Safety*

Subject	Process Safety Management of Highly Hazardous Chemicals— Contract Employees Associated with a Covered Process
Regulatory Reference	29 C.F.R. 1910.119(h); 29 C.F.R. 1910.119(f)(4),(n)
Affected Personnel	Contract employees performing maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process. Does not apply to contractors providing incidental services which do not influence process safety.
Employer (Owner) Responsibility	1. Inform contract employers of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process. 2. Explain to contract employers the applicable provisions of the emergency action plan set forth in 29 C.F.R. 1910.38(a). Procedures for handling small releases must be included in the plan and explained. 3. Develop and implement safe work practices consistent with paragraph (f)(4) of the standard to control the entrance, presence and exit of contract employers and contract employees in covered process areas. 4. Periodically evaluate the performance of contract employers in fulfilling their obligations as specified in paragraph (h)(3) of the regulation. 5. Maintain a contract employee illness and injury log.
Incorporated by Reference	29 C.F.R. 1910.252(a) Fire Prevention and Protection (Hot Work Permit) 29 C.F.R. 1910.38(a) Emergency Action Plan
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans/Fire Protection 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.146 Permit-Required Confined Spaces 58 Fed. Reg. 4462 (1/14/93) 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Appendix D to 29 C.F.R. 1910.119 Company Process Operating Procedures and Safe Work Practices API Recommended Practice 2220, *Improving Owner and Contractor Safety Performance*, First Edition, September 1991 API Recommended Practice 750, *Management of Process Hazards*, First Edition, January 1990 OSHA Publication 3132, *Process Safety Management*, 1992 OSHA Publication 3133, *Process Safety Management Guidelines for Compliance*, 1992 OSHA Instruction CPL 2-2.45A, *Process Safety Management of Highly Hazardous Chemicals—Compliance Guidelines and Enforcement Procedures*, September 1992 CMA *Operations Training Guide for Process Safety*

Subject	Permit-Required Confined Space
Regulatory Reference	58 Fed. Reg. 4549, 4553 (1993) (To be codified at 29 C.F.R. 1910.146)
Who Must Be Trained	All affected employees whose work is regulated by this section (e.g., authorized entrants, attendants, entry supervisors and rescue personnel).
Frequency of Training	Training must be provided to affected employees: 1. Before employee is first assigned duties under this section; 2. Before there is a change in assigned duties; 3. Whenever there is a change in permit space operations that presents hazards about which an employee has not already been trained; 4. Whenever the employer has reason to believe that: a. There are deviations from the permit space entry procedures required by (d)(3) of the standard; or b. That there are inadequacies in the employee's knowledge of the procedures; and 5. Rescue personnel must practice making permit space rescues once every 12 months.
Content Overview	Employer must provide training so that regulated employees acquire the knowledge, understanding and skills necessary for the safe performance of duties. Training must establish proficiency in duties as described below: Employer responsibility varies depending on the category of personnel. 1. *Authorized Entrants* Employers must ensure that authorized entrants: a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure; b. Properly use equipment as required by paragraph (d)(4) of the standard; c. Communicate with the attendant to enable the attendant to monitor entrant status and alert entrants of the need to evacuate the space; d. Alert the attendant whenever the entrant i. Recognizes any warning sign or symptom of exposure to a dangerous situation, or ii. Detects a prohibited condition; and e. Exit from permit spaces as quickly as possible whenever: i. An attendant or supervisor gives an evacuation order, or ii. The entrant recognizes any warning sign; or, symptom of exposure to a dangerous situation, or iii. The entrant detects a prohibited condition, or iv. An evacuation alarm is activated. 2. *Authorized Attendants* Employers must ensure that authorized attendants: a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms and consequences of exposure; b. Are aware of possible behavioral effects of hazard exposure in authorized entrants; c. Continuously maintain an accurate count of authorized entrants in the permit space and ensure that accurate means are used to identify entrants; d. Remain outside permit space during entry operations until relieved by another attendant;

e. Communicate with authorized entrants to monitor entrant status and alert entrant if there is a need to evacuate the space;
f. Monitor activities inside and outside of the space to determine whether or not it is safe for entrants to remain;
g. Order entrants to evacuate the permit space under any of the following conditions:
    i. Detection of a prohibited condition,
    ii. Detection of a behavioral effect of hazardous exposure in an authorized entrant,
    iii. Detection of a situation outside the space that could endanger the authorized entrants, and
    iv. If the attendant cannot safely perform all required duties;
h. Summon rescue and other emergency services upon determination that authorized entrants may need assistance in escape from permit space;
i. Upon approach or entry of permit space by unauthorized persons:
    i. Warn the persons that they must stay away from the permit space;
    ii. Advise the persons who have entered the permit space that they must immediately exit; and
    iii. Inform authorized entrants and the entry supervisor when unauthorized persons have entered the permit space;
j. Perform non-entry rescues according to employer's rescue procedure; and
k. Do not perform any duties that might interfere with attendant's primary duty to monitor and protect authorized entrants.

3. *Entry Supervisors*

Employers must ensure that each entry supervisor:

a. Knows the hazards that may be faced during entry including information on the mode, signs or symptoms and consequences of exposure;
b. Verifies that the appropriate tests have been conducted and that the procedures and equipment specified in the permit are in place before endorsing the permit and allowing entry;
c. Terminates entry and cancels permit when:
    i. Entry operations covered by the permit have been completed, or
    ii. A condition that is not allowed under the entry permit arises in or near the permit space;
d. Verifies that rescue services are available and the means for summoning them are operable;
e. Removes unauthorized individuals who enter or attempt to enter permit space during entry operations; and
f. Determines that entry operations remain consistent with terms of entry permit and acceptable entry conditions are maintained.

4. *Rescue and Emergency Personnel*

The following requirements apply to employers who have employees enter permit spaces to perform rescue services:

a. Employer must ensure that rescue personnel are provided with, and trained to properly use, personal protective equipment and rescue equipment needed to make rescues from permit spaces;
b. Each member of the rescue service must be trained to perform assigned rescue duties. Rescue personnel must also receive the training required for authorized entrants;
c. Rescue personnel must practice making permit space rescues at least once every 12 months, as detailed in subsection 29 C.F.R. 1910.146(k)(iii);
d. Rescue personnel must be trained in basic first aid and CPR; and
e. Section (k)(2) outlines separate requirements for employers arranging for non-employees to perform rescue services.

Suggested Training Objectives	Upon successful completion of training, the affected employees will be informed as to: 1. The difference between permit-required confined spaces and non-permit-required confined spaces; 2. Permit-required confined space entry procedures, including duties of each individual and/or team; 3. The hazards that may be faced during entry, including information on mode, signs or symptoms and consequences of exposure; and 4. What equipment is to be used for permit-required confined space entry and demonstrate its use, including PPE, ventilation devices, atmospheric test/monitoring devices, etc. For *Authorized Entrants*: 1. Proper use of equipment; and 2. Conditions and procedures to be followed in the event of an emergency requiring exit from the space. For *Attendants*: 1. The activities one should perform in monitoring the conditions of the space and the entrants; 2. The conditions for ordering the evacuation of the space and how to summon rescue services; and 3. How to perform non-entry rescues. For *Entry Supervisors*: 1. The appropriate tests and monitoring requirements; 2. Acceptable and prohibited conditions for entry; and 3. Proper permitting and entry procedures. For employees used as *Rescue Personnel*: 1. Perform the duties of the authorized entrant; 2. First-aid, including CPR skills; and 3. Rescue operations during simulated drills. *NOTE*: All employees whose work is regulated by this section shall after successful completion of training be certified as follows: 1. Employee's name; 2. Signature or initials of trainers; and 3. Dates of training.
Incorporated by Reference	29 C.F.R. 1910.147 Control of Hazardous Energy 29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1910.Subpart Z—Toxic and Hazardous Substances 29 C.F.R. 1910.1028 Benzene
Other Regulations with Similar Training/Information Provisions	None
Other Resources	ANSI Z117.1 1989, *Safety Requirements for Confined Spaces* API 2217, *Guidelines for Confined Space Work in the Petroleum Industry* API 2217A, *Guidelines for Work in Inert Confined Spaces in the Petroleum Industry* NIOSH Publication 87-113, *Guide to Safety in Confined Spaces* Company Resources

Subject	Control of Hazardous Energy (Lockout/Tagout)
Regulatory Reference	29 C.F.R. 1910.147(c)(7)
Who Must Be Trained	Different training requirements for "authorized employee"—a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. "Affected employee"—an employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout or whose job requires him/her to work in an area where such activities are being performed. An affected employee becomes an "authorized employee" when his/her duties include performing servicing or maintenance covered by the regulations. "Other employees"—those whose work operations are or may be in an area where energy control procedures may be utilized.
Frequency of Training	Initially, with retraining for affected and authorized employees required: 1. Whenever there is a change in job assignments, a change in machine equipment or processes that present a new hazard or when there is a change in the energy control procedures; or, 2. Whenever a periodic inspection reveals or employer has reason to believe that there are deviations from or inadequacies in employee's knowledge or use of energy control procedures.
Content Overview	Training shall cover the following: 1. Authorized employees shall be trained in recognition of applicable hazardous energy sources, the types and magnitudes of the energy available in the workplace, and the methods and means necessary for energy isolation and control; 2. Affected employees shall be instructed in the purpose and use of the energy control procedures; 3. Other employees 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; 4. When tagout systems are used, training shall include information on the purpose, function, and limitations of tags; materials of which tags and their means of attachment may be made; need for legibility and understandability of tags by all affected employees; the need for secure attachment of tags to energy-isolating devices; and the necessity of authorization before removing tags. This section does not specify category of employee to be trained, it simply says "employees" shall be trained; and 5. Employer shall certify that employee training has been completed and is kept up to date. Certification shall include employee's name and dates of training.
Suggested Training Objectives	Upon successful completion of training, authorized employees will be informed of the following: 1. The purpose of the standard and the hazards controlled. 2. When the standard applies. 3. The equipment used for lockout/tagout.

	4. The procedures for a. Shutdown, isolation and blocking; b. Notification of affected employees; c. Release of stored energy; d. Testing to verify effectiveness and energy control; e. Release from lockout/tagout; and f. Release if employee who applied device is no longer at facility. 5. Special procedures for a. Use of tags; b. Shift and personnel changes; c. Group lockout/tagout; d. Turnarounds; e. Inspection program; and f. Communication and reporting of problems. Affected employees will understand: 1. Knowledge and skills required for safe application, usage and removal of energy controls; and 2. The purpose and function of the energy control program.
Incorporated by Reference	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.331–335 Electrical Safe Work Practices 29 C.F.R. 1910 Subpart S—Electrical
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Procedures OSHA Instruction CPL 2.85—29 C.F.R. 1910.147—*The Control of Hazardous Energy (Lockout/Tagout)—Inspection Procedures and Interpretive Guidance* OSHA Publication 3120, *Control of Hazardous Energy (Lockout/Tagout)* OSHA Model Lockout/Tagout Program API 2217, *Guidelines for Confined Space Work in the Petroleum Industry* API 2217A, *Guidelines for Work in Inert Confined Spaces in the Petroleum Industry*

Subject	Electric Power Generation, Transmission, and Distribution
Regulatory Reference	29 C.F.R. 1910.269(a)(2)(i) through (vii)
Who Must Be Trained	Employees who operate, maintain, or work with machinery/tools that may contact the equipment involved in electric power generation, transmission and distribution.
Content Overview	Employee training shall consist of the safety related work practices, procedures, and other safety requirements that pertain to the employee's job assignment. Employees shall be trained and familiar with any safety practices including emergency procedures (i.e. man-hole rescue, pole top rescue, etc.) that are related to their work and safety. Qualified employees shall also be trained and competent in • the skills and techniques to distinguish live parts from other parts of electric equipment • the skills and techniques to determine the nominal voltage of exposed live parts • the minimum approach distances corresponding to the voltages to which an employee will be exposed • the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment.
Suggested Training Objectives	1. The employer shall determine through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with the safety-related work practices, (1910.269(a)(2)(iii)). 2. Certain conditions may warrant additional training, (1910.269(a)(2)(iv)). 3. Training shall be of the classroom or on-the-job type, (1910.269(a)(2)(v)). 4. The training shall establish employee proficiency in the required work practices and shall introduce the procedures necessary for compliance, (1910.269(a)(2)(vi)). 5. The employer shall certify that the employee has received the training, (1910.269(a)(2)(vii)).
Incorporated by Reference	29 C.F.R. 1910.146 Permit Required Confined Space 29 C.F.R. 1910.147 Control of Hazardous Energy Sources (Lockout/Tagout) 29 C.F.R. 1910.151 Medical Services and First Aid Subpart S Electrical 29 C.F.R. 1910.25-.26 Stairways and Ladders 29 C.F.R. 1910.38 Employee Emergency Plans and Fire Protection 29 C.F.R. 1910.67 Aerial Devices and Lifts 29 C.F.R. 1910.68 Manlifts 29 C.F.R. 1910.94 Ventilation 29 C.F.R. 1910.132-.138 Personal Protective Equipment: Eye and Face Protection, Respiratory Protection, Head Protection, Foot Protection, and Hand Protection 29 C.F.R. 1910.157 Portable Fire Extinguisher 29 C.F.R. 1910.178 Powered Industrial Trucks 29 C.F.R. 1910.179 Overhead and Gantry Cranes 29 C.F.R. 1910.268 Telecommunications 29 C.F.R. 1910.302-.308 Electrical Safety Requirements 29 C.F.R. 1910.332-.335 Electrical Safety Related Work Practices 29 C.F.R. 1910.1030 Bloodborne Pathogens 29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1926 Subpart M., Fall Protection

Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1926.302 Power Operated Hand Tools 29 C.F.R. 1926.400-.417 Subpart K, Electrical Requirements 29 C.F.R. 1926.651 General Protection Requirements Excavation 29 C.F.R. 1926.950 General Requirements Power Transmission 29 C.F.R. 1926.956 Underground Lines 29 C.F.R. 1926.957 Construction in Energized Substations 29 C.F.R. 1926.1060 Stairways and Ladders
Other Resources	Company Policies and Procedures

Subject	Safety-Related Work Practices—Electrical
Regulatory Reference	29 C.F.R. 1910.332(b)(1)
Who Must Be Trained	All employees who face the risk of electrical shock that has not been reduced to a safe level by the electrical installation requirements of Sections 1910.303–308. Table S-4 of the regulations lists categories of employees facing a higher risk of electrical accident. These employees *must* be trained. Other employees reasonably expected to face a comparable risk must also be trained. "Qualified persons," those permitted to work on or near exposed energized parts, are subject to additional training requirements. Training shall be of the classroom or on-the-job type.
Frequency of Training	Frequency not specified in regulations.
Content Overview	Employees must be trained in the safety-related work practices required by the regulations that pertain to their particular job assignments. (See applicable portions of Sections 1910.331–335.) Employees who are not "qualified" must also be trained in any electrically related safety practices that are specifically addressed by the regulations but that are necessary for their safety. "Qualified persons" must, in addition, be trained in the following: a. The skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment; b. The skills and techniques necessary to determine the nominal voltage of exposed live parts; and c. The clearance distances specified in Section 1910.333(c) and the corresponding voltages to which the qualified person will be exposed. In addition, "qualified persons" whose work involves direct contact or contact by means of tools or materials must have the training needed to meet Section 1910.333(c)(2).
Suggested Training Objectives	Upon successful completion of training, "unqualified" employees who are not "qualified" will understand 1. Electrical hazards in the work place; 2. Protective measures which provide protection from electrical shock; 3. Basic electrical equipment inspection procedures; and 4. Safe equipment disconnect and restart procedures.
Incorporated by Reference	29 C.F.R. 1910.301 Introduction to Electrical Safety 29 C.F.R. 1910.302 Electric Utilization Systems 29 C.F.R. 1910.303 General Requirements 29 C.F.R. 1910.304 Wiring Design and Protection 29 C.F.R. 1910.305 Wiring Methods, Components and Equipment for General Use 29 C.F.R. 1910.306 Specific Purpose Equipment and Installations 29 C.F.R. 1910.307 Hazardous Locations 29 C.F.R. 1910.308 Special Systems

	29 C.F.R. 1910.333 Selection and Use of Electrical Work Practices 20 C.F.R. 1910.334 Use of Electrical Equipment 29 C.F.R. 1910.335 Safeguards for Personnel Protection
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 Control of Hazardous Energy (Lockout/Tagout)
Other Resources	API Recommended Practice 500, *Classification of Locations for Electrical Installations at Petroleum Facilities*, First Edition, June 1991 API Recommended Practice 540, *Electrical Installations in Petroleum Processing Facilities*, Third Edition, September 1991 NFPA 70E, *Electrical Safety Requirements* NFPA 70E, Part II, *Electrical Safety Related Work Practices* NFPA 77, Chapter II, *Hazards of Electricity*

Subject	Operation of Ladder Trucks, Tower Trucks, and Articulating Boom Platforms
Regulatory Reference	29 C.F.R. 1910.67(c)(2)(ii)
Who Must Be Trained	Operators of aerial lift equipment.
Frequency of Training	Not specified in the regulations.
Content Overview	There is no regulatory definition of training requirements, but training should reasonably be expected to include provisions in the standard such as 1. No belting off to adjacent structures, 2. No sitting or climbing on edge of basket, nor using planks or ladders for a platform, 3. Must wear body belt and lanyard attached to boom or basket while working, 4. Setting of brakes and outriggers, 5. Boom and basket load limits, 6. Testing and operation of lift controls, and 7. Moving of aerial lifts.
Suggested Training Objectives	See above.
Incorporated by Reference	ANSI A92.2-1969 *Vehicle Mounted Elevating and Rotating Work Platforms* Automotive Welding Standards (AWS) AWS B3.0-41 *Standard Qualification Procedures* AWS D2.0-69 *Specifications for Welding Highway and Railway Bridges* AWS D8.4-61 *Recommended Practices for Automotive Welding Design*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.66(i) Powered Platforms for Building Maintenance 29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.331–335 Electrical Safety Related Work practices (Subpart S - Electrical)
Other Resources	Specific manufacturer's operation, maintenance, and inspection instructions

Subject	Scaffolding
Regulatory Reference	29 C.F.R. 1926.454
Who Must Be Trained	(a) The employer shall have each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. (b) The employer shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question.
Frequency of Training	(c) When the employer has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employer shall retrain each such employee so that the requisite proficiency is regained.
Content Overview	None specified. The regulation states that no employee may perform the referenced tasks unless supervised by a "competent" person.
Suggested Training Objectives	(a)(1) The nature of any electrical hazards, fall hazards, and falling object hazards in the work area. (a)(2) The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used. (a)(3) The proper use of the scaffold, and the proper handling of materials on the scaffold. (a)(4) The maximum intended load and the load-carrying capacities of scaffolds used. (a)(5) Any other pertinent requirements. (b)(1) The nature of scaffold hazards. (b)(2) The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question. (b)(3) The design criteria, maximum intended load-carrying capacity and intended use of the scaffold. (b)(4) Any other pertinent requirements. (c)(1) Where changes to the worksite present a hazard about which an employee has not been previously trained. (c)(2) Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained. (c)(3) Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the required proficiency.
Incorporated by Reference	ANSI A14.1-1968 *Safety Code for Portable Wood Ladders* ANSI A14.2-1968 *Safety Code for Portable Metal Ladders* ANSI A92.2-1969 *Vehicle Mounted Elevating and Rotating Work Platforms* ANSI A120.1-1970 *Power-Operated Devices for Exterior Building Maintenance Powered Platforms* 29 C.F.R. 1926.104 Safety Belts, Lifelines and Lanyards 29 C.F.R. 1926.556 Aerial Lifts American Lumber Standards

Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.28 Scaffolds 29 C.F.R. 1926.451 Scaffolding
Other Resources	Company policies and procedures.

MODULE SET C—PERSONAL PROTECTIVE EQUIPMENT

Subject	Personal Protective Equipment
Regulatory Reference	29 C.F.R. 1910.132(f)
Who Must Be Trained	All employees who must wear protection for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers. Protective equipment is required where there are hazards from processes or environment, chemical hazards, radiological hazards, or mechanical irritants that might cause injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.
Frequency of Training	Not specified in the regulations.
Content Overview	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: a. When PPE is necessary; b. What PPE is necessary; c. How to properly don, doff, adjust, and wear PPE; d. The limitations of the PPE; and e. The proper care, maintenance, useful life and disposal of the PPE. 2. Each employee shall demonstrate an understanding of the training specified in paragraph (f)(1) of this section (as in #1 above), 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 understanding and skill required by paragraph (f)(2) of this section (#2 above), the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where a. Changes in the workplace render previous training obsolete; or b. Changes in the types of PPE to be used render previous training obsolete; or c. 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.
Suggested Training Objectives	See Above.
Incorporated by Reference	None identified by the regulation.
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.52(d)(1) Hearing Conservation (construction) 29 C.F.R. 1910.53 Ionizing Radiation (construction) 29 C.F.R. 1910.58 Asbestos (construction) 29 C.F.R. 1910.95(k) Hearing Conservation 29 C.F.R. 1910.96(I)(2) Ionizing Radiation 29 C.F.R. 1910.102 Eye Protection (construction) 29 C.F.R. 1910.103(e)(3) Respiratory Protection (construction) 29 C.F.R. 1910.119 Process Safety Management 29 C.F.R. 1910.133 Eye Protection 29 C.F.R. 1910.134(b)(3) Respiratory Protection 29 C.F.R. 1910.1001 Occupational Exposure 29 C.F.R. 1910.1200 Hazard Communication

Other Resources

Specific Manufacturer's Instructions/Limitations
ANSI Z4.1, *Requirements for Sanitation in Places of Employment*
ANSI Z89.1, *Safety Requirements for Industrial Head Protection*
OSHA Publication 3077, *Personal Protective Equipment*

Subject	Eye and Face Protection
Regulatory Reference	29 C.F.R. 1910.133; 29 C.F.R. 1910.132(f) Training, Personal Protective Equipment
Who Must Be Trained	All employees who must wear protection for the eyes, face, head, and extremities. Protective eye equipment required where there is a reasonable probability of injury preventable by such equipment. To be used where operations present hazard of flying objects, glare, liquids, injurious radiation or some combination thereof.
Frequency of Training	Not specified in the regulations.
Content Overview	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.
Suggested Training Objectives	Upon successful completion, employees will be informed as to 1. Conditions where eye and face protection is required and why; 2. The proper use and care of protective eye and face equipment; 3. The types of protective equipment and the limitations of each type; and 4. Conditions where further eye and/or face protection may be required.
Incorporated by Reference	ANSI Z87.1, *National Standard for Occupational and Educational Eye and Face Protection*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.252 Welding, Cutting, Brazing 29 C.F.R. 1910.1001 Asbestos 29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1926.58 Asbestos (Construction Work)
Other Resources	Specific Manufacturer's Instructions/Limitations ANSI Z4.1, *Requirements for Sanitation in Places of Employment* ANSI Z89.1, *Safety Requirements for Industrial Head Protection* OSHA Publication 3077, *Personal Protective Equipment*

Subject	Respiratory Protection
Regulatory Reference	29 C.F.R. 1910.134(b)(3),(e)(2),(3),(4), & (5)(i)
Who Must Be Trained	The regulations use several undefined terms in describing who must be trained: "respirator wearer," "user," "personnel," "supervisors," and "workers."
Frequency of Training	Not specified in regulations.
Content Overview	1. All users must be instructed and trained in the proper use of respirators and their limitations [134(b)(3)]. 2. Personnel must be familiar with the procedures covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies [(e)(3)]. 3. Supervisors *and* worker users must be properly instructed in the selection, use, and maintenance of respirators. Training must provide an opportunity to a. Handle the respirator, b. Have it fitted properly, c. Test its face piece-to-face seal, d. Wear it in normal air for a long familiarity period, and e. To wear it in a test atmosphere [134(e)(5)]. 4. Every respirator wearer must 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 [134(5)(i)].
Suggested Training Objectives	Upon completion of training, the trainee should be informed as to 1. When and where respiratory protection equipment is required; 2. The procedure for using required respiratory equipment; 3. The proper use of respiratory protective equipment for exposures identified; and 4. The capabilities and limitations of required respiratory protective equipment.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency & Fire Prevention Plans 29 C.F.R. 1910.94 Ventilation 29 C.F.R. 1910.120 Hazardous Waste Operations & Emergency Response 29 C.F.R. 1910.146 Permit-Required Confined Space 29 C.F.R. 1910.156 Fire Brigade 29 C.F.R. 1910.252 Welding, Cutting & Brazing; General Requirements 29 C.F.R. 1910.1001–.1101 Subpart Z—Toxic and Hazardous Substances 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	NFPA-1981, *Self Contained Breathing Apparatus* ANSI Standard Z88.2-1969, *Practices for Respiratory Protection* OSHA Publication 3079, *Respiratory Protection*

MODULE SET D—JOB–SPECIFIC REQUIREMENTS

[4]Also see 29 C.F.R. 1926.602.

[5]Nondestructive Testing.

Subject	Powered Platforms for Building Maintenance
Regulatory Reference	29 C.F.R. 1910.66(i)
Who Must Be Trained	Any employee who operates working platforms.
Frequency of Training	Not specified in regulations, but emergency action plan must be reviewed with each employee upon initial assignment and whenever plan is changed.
Content Overview	Training requirements for working platforms should consist of the following: 1. Recognition of preventive measures for safety hazards a. Associated with the employee's individual work tasks; and b. Associated with the use of working platforms. 2. Emergency action plan procedures which include emergency procedures in case of power failure and building emergency escape route; 3. Personal fall arrest system inspection, care, use and system performance; and 4. Written work procedures for operation, safe use, and inspection of working platforms.
Suggested Training Objectives	Upon successful completion of training, employees will be informed of the following: 1. The proper operating procedures applicable to powered platforms and manlifts; 2. The inspection procedures for powered platforms and manlifts; 3. Safe work practices when the platform or manlift is in service; and 4. The safety features of the equipment.
Incorporated by Reference	ANSI A12.1-67, *Safety Requirements for Floor and Wall Openings, Railings and Toe Boards* ANSI A14.3-56, *Safety Code for Fixed Ladders* ANSI A90.1-69, *Safety Code for Manlifts* ANSI A92.2-69, *Standard for Vehicle Mounted Elevating and Rotating Work Platforms* ANSI B15.1-53 (R 58), *Safety Code for Mechanical Power Transmission Apparatus* ANSI C1-71, *National Electrical Code* AWS B3.0-41, *Standard Qualification Procedure* AWS D2.0-69, *Specifications for Welding Highway and Railway Bridges* AWS D8.4-61, *Recommended Practices for Automotive Welding Design* AWS D10.9-69, *Standard Qualification of Welding Procedures and Welders for Piping and Tubing* NFPA 70-1971, *National Electrical Code*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.331–335 Electrical Safety Related Work Practices (See Subpart S—Electrical)
Other Resources	Specific Manufacturer's Operation, Maintenance, and Inspection Instructions

Subject	Ventilation—Open Surface Tanks
Regulatory Reference	29 C.F.R. 1910.94(d)(9)
Who Must Be Trained	Employees working in and around open surface tanks (paragraph d).
Frequency of Training	Not specified in regulations.
Content Overview	Basic employee training will include the following elements: 1. The hazards of their respective jobs; 2. The personal protection and first aid procedures applicable to the hazards presented by their jobs; and 3. The proper use of respirators.
Suggested Training Objectives	Upon successful completion of training, employees will be informed of the following: 1. Hazards present from tank content and air contaminants; 2. Properly operating ventilation systems and how to take action in the event of system failure or emergency; 3. Personal protective equipment required for the job; 4. Pre-entry checks and safe entry in accordance with confined space entry and employee standby procedures; 5. Welding or open flame restrictions when around open surface tanks; and 6. Selection, use, and inspection of respiratory equipment.
Incorporated by Reference	29 C.F.R. 1910.107 Spray Finishing Using Flammable and Combustible Material 29 C.F.R. 1910.133 Eye and Face Protection ACRIH Manual *Industrial Ventilation* (1970) ANSI Z9.1-51, *Safety Code for Ventilation and Operation of Open Surface Tanks* ANSI Z9.2-60, *Fundamentals Governing the Design and Operation of Local Exhaust Systems* ANSI Z88.2-69, *Practices for Respiratory Protection* NFPA 34-1966, *Standard for Dip Tanks Containing Flammable and Combustible Liquids*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.146 Confined Space Entry 29 C.F.R. 1910.151 Medical Services and First Aid 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.252 Welding, Cutting, and Brazing 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Procedures and Practices on Ventilation Systems

Subject	Hydrogen (Liquified Hydrogen Systems)
Regulatory Reference	29 C.F.R. 1910.103(c)(4)
Affected Employees	Employees attending unloading of mobile hydrogen units.
Frequency	Not specified, recommended upon initial assignment.
Information Content Overview	1. For installation which requires any operation by the user, legible instructions must be maintained at operating locations. 2. A "qualified" person must be in attendance at all times while the mobile hydrogen supply unit is being unloaded.
Information Objectives	Upon successful completion, employees will be informed of the following: 1. The hazards involved with hydrogen systems; 2. The location and meaning of marking signs; 3. The location and function of safety relief devices; 4. How to secure a mobile hydrogen unit to prevent movement; 5. Operation of hydrogen equipment and safety procedures, grounding, and bonding; 6. Duties and requirements for operator-attended unloading of hydrogen; and 7. Emergency response procedures.
Incorporated by Reference	ANSI Z48.1-54, *Method for Marking Portable Compressed Gas Containers to Identify the Material Contained*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.120 Hazardous Waste Operations & Emergency Response 29 C.F.R. 1910.145 Specifications for Accident Signs & Tags 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Practices and Procedures Regarding Unloading of Hydrogen NFPA 50, *Gaseous Hydrogen Systems* API Standard 650, *Welded Steel Tanks for Oil Storage*, Eighth Edition, November 1988 API Standard 2000, *Venting Atmospheric and Low-Pressure Storage Tanks (Nonrefrigerated and Refrigerated)*, Third Edition, January 1982 ASME *Boiler and Pressure Vessel Code*

Subject	Flammable and Combustible Liquids
Regulatory Reference	29 C.F.R. 1910.106(b)(5)(vi)(v) (2) and (3)
Who Must Be Trained	Employees involved in the transfer and storage of flammable and combustible liquids in areas subject to flooding.
Frequency of Training	Not specified, but recommended upon initial assignment.
Content Overview	Basic employee training will include the following elements: 1. Detailed printed instructions of what to do in flood emergencies and proper posting of these instructions; and 2. Location and operation of valves and other equipment required to effect the requirements of the flood emergency instructions.
Suggested Training Objectives	Upon completion of training, the employee will be informed of the following: 1. The contents of the written emergency plan as it relates to flood emergencies; 2. The location of the written instructions; 3. The location of valves and equipment required to affect the flood emergency instructions; and 4. Proper operation of valves and equipment.
Incorporated by Reference	29 C.F.R. 1910.159 Automatic Sprinkler Systems
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans and Fire Prevention
Other Resources	NFPA 30, *Flammable Liquids Code* NFPA 321, *Classification of Flammable Liquids* NFPA 325M, *Properties of Flammable Liquids Spill Prevention Control and Countermeasure Plans* API Bulletin D16, S*uggested Procedure for Development of Spill Prevention Control and Countermeasure Plans, (To Assist Conformance to Requirements of Title 40, Code of Federal Regulations, Part 112),* Second Edition, August 1989

Subject	Storage and Handling of Liquefied Petroleum Gases (LPG)
Regulatory Reference	29 C.F.R. 1910.110(b)(16); (d)(12)(i)
Who Must Be Trained	All personnel performing installation, removal, operation, and maintenance work. Attendants, watchmen at LPG installations have separate training requirements.
Frequency of Training	Not specified in regulations, but recommended upon initial assignment.
Content Overview	The function of installation, removal operation and maintenance work associated with LPGs. Watchmen at LPG installations must be "properly trained."
Suggested Training Objectives	Upon successful completion of training: 1. Personnel performing construction, removal, operation, and maintenance shall be properly trained in such function; and 2. When standard water service is provided, it shall be extended to the LP-Gas installation and personnel properly trained.
Incorporated by Reference	NFPA 58, *LP-Gas Storage and Use* NFPA 59, *LP-Gas, Utility Plants*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.151 Medical Service and First Aid 29 C.F.R. 1910.252 Welding, General Requirements 29 C.F.R. 1910 Subpart S—Electrical 29 C.F.R. 1910.120 Hazardous Waste Operation and Emergency Response 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Safety Procedures

Subject	Storage and Handling of Anhydrous Ammonia
Regulatory Reference	29 C.F.R. 1910.111(b)(13)(ii)
Who Must Be Trained	Employees involved with the tank car unloading of anhydrous ammonia.
Frequency of Training	Not specified, but recommended prior to initial assignment.
Content Overview	Regulations state only that employees shall be "properly instructed" and given authority to monitor compliance with all applicable procedures.
Suggested Training Objectives	Upon successful completion of training, employees will understand 1. The hazards and characteristics involved with the storage and handling of anhydrous ammonia; 2. The proper method for transferring anhydrous ammonia; and 3. Emergency response procedures.
Incorporated by Reference	ANSI K61.1-60 & -61, S*afety Requirements for the Storage and Handling of Anhydrous Ammonia* ANSI Z48.1-54, *Method for Marking Portable Compressed Gas Containers to Identify the Material Contained*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans and Fire Prevention Plans 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.145 Specification for Accident Prevention Signs and Tags 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.1200 Hazard Communication 49 C.F.R. Chapter I—Marking Portable Compressed Gas Containers to Identify the Material Contained, ANSI Z48.1-1954 (R1970)
Other Resources	Company Practices and Procedures on Handling of Anhydrous Ammonia

Subject	Hazardous Waste Operations and Emergency Response Treatment, Storage and Disposal Facilities
Regulatory Reference	29 C.F.R. 1910.120(p), (i), (7), (8)
Who Must Be Trained	All employees exposed to health hazards or hazardous substances in a designated Treatment, Storage and Disposal (TSD) facility, regulated by 40 C.F.R. Parts 264 and 265 pursuant to RCRA or under agreement with EPA to implement RCRA regulations.
Frequency of Training	New Employee—Twenty-four hours of training upon initial assignment and 8 hours annually thereafter. Current Employee—Training equivalent to new employee with credit given for work experience and 8 hours refresher training annually.
Content Overview	1. Information to enable employees to perform their duties and functions in a safe and healthful manner so as not to endanger themselves or other employees. 2. Employers required to develop a written safety and health program designed to a. Identify, evaluate, and control safety and health hazards in facilities; b. Provide for an emergency response plan addressing at a minimum: i. Pre-emergency planning and coordination with outside parties, ii. Personnel roles, lines of authority, and communication, iii. Emergency recognition and prevention, iv. Safe distances and places of refuge, v. Site security and control, vi. Evacuation routes and procedures, vii. Decontamination procedures, viii. Emergency medical treatment and first aid, ix. Emergency alerting and response procedures, x. Critique of response and follow up, and xi. PPE and emergency equipment; c. Address site analysis, engineering controls, maximum exposure limits, hazardous waste handling procedures and uses of new technology; d. Emergency response employees must be trained in the following: i. The emergency response plan, ii. Standard operating procedures for the job, iii. Personal protective equipment to be worn, and iv. Procedures for handling emergency incidents.
Suggested Training Objectives	Upon successful completion of training employees will be informed as to the following: 1. How to respond to emergencies; 2. The emergency response plan; 3. The standard operating procedures; 4. The procedures for handling emergencies; 5. What protective clothing is to be used; 6. The control equipment for the facility; 7. The response to overexposure and subsequent symptoms; and 8. How to recognize hazardous materials and their characteristics.
Incorporated by Reference	29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.151 Medical Services/First Aid

	29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1910 Subpart Z—Exposure Limits 29 C.F.R. 1926 Subpart P—Site Excavation 29 C.F.R. 1910.165 Employee Alarm Systems RCRA, 42 USC 6901 ET SEQ NIOSH Recommendations for Occupational Health Standards, American Council of Governmental and Industrial Hygienist publication *Threshold Limit Values and Biological Exposure Indices for 1986-87*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.120 paragraph (q), covered under "Emergency Response" of this document
Other Resources	OSHA Instruction DFO CPL 2.70, *Special Emphasis Program: Hazardous Waste Sites* OSHA Instruction DFO CPL 2-2.37A, *Technical Assistance and Guidelines for Superfund and Other Hazardous Waste Site Activities* OSHA Instruction DTS CPL 2.74, *Hazardous Waste Activity Form OSHA 175* U.S. Department of Labor, Occupational Safety and Health Administration, *Hazardous Waste Inspections Reference Manual* Memorandum of Understanding Among the National Institute for Occupational Safety and Health Administration, the United States Coast Guard, and the United States Environmental Protection Agency, *Guidance for Worker Protection During Hazardous Waste Site Investigations and Clean-up and Hazardous Substance Emergencies* U.S. Environmental Protection Agency, *National Priorities List* Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Field Standard Operating Procedures 7, *The Decontamination of Response Personnel* U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Field Standard Operating Procedures 9, *Preparation of Site Safety Plan* U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Environmental Response Team, *Standard Operating Safety Guidelines* NIOSH, OSHA, USCG, EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* U.S. Environmental Protection Agency EPA/625/9-85/006, *Protecting Health and Safety at Hazardous Waste Sites: An Overview* U.S. Department of Health and Human Services, Public Health Service Centers for Disease Control, National Institute for Occupational Safety and Health, NIOSH Worker Bulletin, *Hazardous Waste Sites and Hazardous Substance Emergencies* U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, NIOSH, *Personal Protective Equipment for Hazardous Material Incidents: A Selection Guide* International Association of Fire Chiefs Foundation, *Fire Service Emergency Management Handbook* U.S. Department of Transportation, *Emergency Response Guidebook* Federal Emergency Management Agency, *Report to the Congress on Hazardous Materials Training, Planning and Preparedness* Alan V. Brunacini and J. David Beageron, National Fire Protection Association, *Workbook for Fire Command* Oklahoma State University, Fire Protection Publication, *Incident Command System* Alan V. Brunacini and J. David Beageron, National Fire Protection Association, *Fire Command*

Chemical Manufacturers Association, *Site Emergency Response Planning*

Environmental Protection Agency NRT-1, *Hazardous Materials Emergency Planning Guide*

U.S. Department of Transportation, *Community Teamwork: Working Together to Promote Hazardous Materials Transportation Safety*

Federal Emergency Management Agency FEMA 141, *Disaster Planning Guide for Business and Industry*

Subject	Servicing Multi-Piece and Single-Piece Rim Wheels (does not include automotive or truck tires marked "LT")
Regulatory Reference	29 C.F.R. 1910.177(c)(1)(2)(3), (f) and (g)
Who Must Be Trained	Any employee who services single and/or multi-piece rim wheels.
Frequency of Training	Upon initial assignment with retraining as necessary to maintain proficiency.
Content Overview	Employees must be trained and instructed in 1. Correct procedures of servicing the type of wheel being serviced; and 2. Safe operating procedures for multi-piece and single-piece rim wheels as described in Sections (f) and (g) of the regulations. Employers must assure that each employee demonstrates and maintains the ability to service rim wheels safely, including performance of the following tasks: 1. Demounting of tires (including inflation); 2. Inspection and identification of the rim wheel components; 3. Mounting of tires (including inflation with a restraining device or other safeguard required by the regulations); 4. Use of the restraining device or barrier and other equipment required by the regulations; 5. Handling of rim wheels; 6. Inflation of the tire when a single-piece rim wheel is mounted on a vehicle; 7. An understanding of the necessity of standing outside the trajectory both during inflation of the tire and during inspection of the rim wheel following inflation; and 8. Installation and removal of rim wheels.
Suggested Training Objectives	Upon successful completion of training, employees will understand 1. The hazards associated with working with rim wheels; 2. How to obtain information from charts and manuals, etc. (*NOTE*: Special instructions may be needed for employees who have problems reading manuals.); 3. How to service rim wheels safely, including performance of following tasks: a. Demounting of tires, b. Inspection and identification of tire components, c. Mounting of tires, d. Use of restraining devices or barriers, e. Handling rim wheels, f. Inflation when single rim tire is mounted on vehicle, g. Installation and removal of wheels, 4. Instructed in safe operating procedures for multi-piece rim wheels to include the following: a. Deflation b. Situations calling for removal of valve core, c. Rubber lubricant, d. Rules for inflation, e. Rules for inspection and restraining, f. Repair restrictions, g. Staying outside the trajectory when multi-piece is being handled, unless employer can demonstrate that employee's presence is necessary, and h. No heat shall be applied to multi-piece wheel or wheel component;

	5. Instructed in safe operating procedures for single piece rim wheels to include the following: a. Deflation, b. Mounting and remounting, c. Non-flammable rubber lubricant, d. Rules for operation and inflation (including use of tire changing machine), e. Repair restrictions, and f. No heat shall be applied to single-piece wheel.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	None
Other Resources	29 C.F.R. 1910.1001 Asbestos (Brake Linings)

Subject	Powered Industrial Trucks/Material Handling Equipment
Regulatory Reference	29 C.F.R. 1910.178(l)
Who Must Be Trained	Any employee who operates powered industrial trucks, e.g., fork lifts, tractors, platform lift trucks, motorized lift trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.
Frequency of Training	Prior to any employee operating a powered industrial truck. Need for refresher training not specified.
Content Overview	The regulations state only that operators must be trained in the "safe operation of powered industrial trucks." Regulations governing safe truck operations are found in sections (m) "Truck Operations," (n) "Travellings," (o) "Loadings," and (p) "Operation of the Trucks."
Suggested Training Objectives	Upon successful completion of training: Operators must be trained in the safe operation of powered industrial trucks. Methods shall be devised to train operators in the safe operation of powered industrial trucks.
Incorporated by Reference	ANSI A11.1-65 (R 70), *Practice for Industrial Lighting* ANSI B56.1-69, *Safety Standard for Powered Industrial Trucks* ANSI C1-71, *National Electrical Code* NFPA 30-1969, *Flammable and Combustible Liquids Code* NFPA 58-1969, *Standards for Storage and Handling of Liquefied Petroleum Gases* NFPA 70-1971, *National Electrical Code* 29 C.F.R. 1910.168 Safety Relief Devices, Portable Tanks Storing Compressed Gases
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.331–335 Electrical Safety Related Work Practices—Subpart S—Electrical
Other Resources	Specific Manufacturer's Instructions for Operation, Maintenance, and Inspection

Subject	Overhead and Gantry Cranes
Regulatory Reference	29 C.F.R. 1910.179(n)(3)(ix)
Who Must Be Trained	Any employee who operates a crane covered by this regulation.
Frequency of Training	Not specified.
Content Overview	The regulations require that when two or more cranes are used to lift a load, the qualified responsible person shall instruct all personnel in 1. Proper positioning; 2. Rigging of the load; and 3. Movements to be made.
Suggested Training Objectives	Authorized employees should be instructed in the following when two or more cranes are involved: 1. Proper positioning; 2. Rigging of the load; and 3. Movements to be made.
Incorporated by Reference	ANSI A14.3-1956, *Safety Code for Fixed Ladders* ANSI B30.2.0-1967, *Safety Code for Overhead and Gantry Cranes* Crane Manufactures Association of America, Inc., Specification No. 61, *Specification for Electric Overhead Traveling Cranes* 29 C.F.R. 1910.27 Fixed Ladders
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.165 Employee Alarm Systems
Other Resources	Company Practices Manufacturer's Operating Manuals

Subject	Crawler Locomotive and Truck Cranes
Regulatory Reference	29 C.F.R. 1910.180 (i)(5)(ii)
Who Must Be Trained	Any employee who operates a crawler, locomotive or truck crane covered by this regulation.
Frequency of Training	Not specified.
Content Overview	Operating and maintenance personnel must be made familiar with the use and care of fire extinguishers provided.
Suggested Training Objectives	Upon successful completion of training, authorized employees will be instructed in the use and care of fire extinguishers.
Incorporated by Reference	ANSI B30.5-1968, *Safety Code for Crawler, Locomotive, and Truck Cranes* Society of Automotive Engineers (SAE) J765, Crane Load-Stability Test Code
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.165 Employee Alarm Systems
Other Resources	Company Practices Manufacturer's Operating Manuals

Subject	Derricks
Regulatory Reference	29 C.F.R. 1910.181(b)(3) and (j)(3)(ii)
Affected Employees	Designated personnel who operate a derrick covered by this regulation.
Frequency	Not specified.
Information Content Overview	The regulations state only that 1. Only "designated personnel" shall be permitted to operate a derrick. "Designated" means selected by the employer as qualified to perform specific duties. 2. Operation and maintenance personnel must be familiar with the use and care of fire extinguishers provided.
Information Objectives	Upon successful completion, designated personnel will be instructed in 1. Operations of the derrick; and 2. Use and care of the fire extinguisher.
Incorporated by Reference	ANSI B30.6-1969, *Safety Code for Derricks*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.165 Employee Alarm Systems
Other Resources	Company Practices Manufacturer's Operating Manuals

Subject	Slings
Regulatory Reference	29 C.F.R. 1910.184
Affected Employees	Employees who inspect and use slings covered by this regulation.
Frequency	Not specified.
Information Content Overview	No mandated training requirements. Slings must be inspected by a "competent" person selected by the employers.
Incorporated by Reference	ASTM A 391-65 (ANSI G61.1-1968), *Alloy Steel Chains*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.165 Employee Alarm Systems
Other Resources	Company Practices Manufacturer's Operating Manuals

Subject	Welding, Cutting, Brazing
Regulatory Reference	29 C.F.R. 1910.252(a)(2)(iii)(B); .252(a)(2)(xiii)(C)
Affected Employees	Fire watchers, cutters, welders, and supervisors of those personnel.
Frequency	Not specified.
Information Content Overview	Fire watchers must be trained in the use of fire extinguishing equipment, and familiar with facilities for sounding an alarm in the event of fire. Cutters and welders and their supervisors must be "suitably" trained in the safe operation of their equipment and the safe use of the process. Contractors must be advised about flammable materials or hazardous conditions of which they might not be aware.
Information Objectives	Upon successful completion, employees will be instructed in: 1. Proper use of fire extinguisher equipment; 2. How to sound the alarm; 3. How to operate their equipment in a safe manner; 4. The hazards of welding, especially in confined spaces; and 5. Responsibilities of a fire watcher.
Incorporated by Reference	ANSI B31.2-68, *Fuel Gas Piping* ANSI C33.2-56, *Safety Standard for Transformer Type Arc Welding Machines* ANSI Z49.1-67, *Safety in Welding and Cutting* ANSI Z87.1-68, *Eye and Face Protection* API 1104 (1968), *Standard for Welding Pipelines and Related Facilities* ASTM B 88-66A, *Seamless Copper Water Tube* NFPA 566-1965, *Standard for the Installation of Bulk Oxygen Systems at Consumer Sites*
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.146 Permit-Required Confined Spaces 29 C.F.R. 1910.151 Medical Services and First Aid 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Manufacturer's Information API Standard 1104, *Welding of Pipelines and Related Facilities*, Seventeenth Edition, September 1988

Subject	Oxygen-Fuel Gas Welding and Cutting
Regulatory Reference	29 C.F.R. 1910.253(a)(1)(4); (c)(5)(i); & (e)(6)(ii)
Who Must Be Trained	Workers in charge of oxygen or fuel gas supply equipment and manifold operations, and repair of regulators and gages.
Frequency of Training	Not specified, but recommended prior to initial assignment.
Content Overview	Workmen in charge of the oxygen or fuel-gas supply equipment must be instructed and judged competent by the employer before being left in charge. Rules and instructions covering operation and maintenance of such equipment, including generators and oxygen or fuel-gas distribution piping systems, shall be readily available. Cylinder manifolds must be installed under the supervision of someone familiar with proper practices pertaining to their construction and use. Repairs on regulators or parts of regulators, including gauges, shall be performed by skilled mechanics who have been "properly instructed."
Suggested Training Objectives	Upon successful completion of training, relevant employees will understand: 1. Proper operation and maintenance of oxygen and fuel-gas distribution piping systems according to written instructions; 2. Proper practices in construction and use of manifolds for oxygen fuel-gas welding; and 3. How to repair regulators or parts of regulators, including gauges.
Incorporated by Reference	ANSI A13.1-56, *Scheme for the Identification of Piping Systems* ANSI B57.1-65, *Compressed Gas Cylinder Valve Outlet and Inlet Connections* ANSI Z49.1-54, *Method for Marking Portable Compressed Gas Containers to Identify the Material Contained* CGA 1957, *Standard Hose Connection Standard* CGA and RMA, *Specification for Rubber Welding Hose* (1958) NFPA 80-1970, *Standard for the Installation for Fire Doors and Windows*
Other Regulations with Similar Training/Information Provisions	None
Other Resources	Manufacturer's Information API Standard 1104, *Welding of Pipelines and Related Facilities*, Seventeenth Edition, September 1988

Subject	Arc Welding and Cutting
Regulatory Reference	29 C.F.R. 1910.254(a)(3), (d)
Who Must Be Trained	Workers assigned to operate or maintain arc welding equipment.
Frequency of Training	Not specified, but recommended prior to initial assignment.
Content Overview	Covered workmen must be "acquainted" with the requirements of 1. 29 C.F.R. 1910.252: a. Fire prevention and protection, b. Personnel protection, and c. Health protection and ventilation. 2. 29 C.F.R. 1910.254(d): a. Machine hook up, b. Grounding, c. Leaks, d. Switches, e. Manufacturers' instructions, f. Electrode holders, g. Electric shock, and h. Maintenance. If workers are doing gas-shielded arc welding, they must also be acquainted with Recommended Safe Practices for Gas Shielded Arc Welding, A6.1-1966, American Welding Society.
Suggested Training Objectives	Upon successful completion of training, employees will be instructed in the following: 1. 29 C.F.R. 1910.252: a. Fire prevention and protection, b. Personnel protection, and c. Health protection and ventilation. 2. 29 C.F.R. 1910.254(d): a. Machine hook up, b. Grounding, c. Leaks, d. Switches, e. Manufacturers' instructions, f. Electrode holders, g. Electric shock, and h. Maintenance.
Incorporated by Reference	AWS A6.1 (1966), *Recommended Safe Practices for Gas Shielded Arc Welding*
Other Regulations with Similar Training/Information Provisions	None
Other Resources	Manufacturer's Information API Standard 1104, *Welding of Pipelines and Related Facilities*, Seventeenth Edition, September 1988

Subject	Toxic and Hazardous Substances (Subpart Z)—Selected Substances
Regulatory Reference	29 C.F.R. 1910.1003, .1004, .1006, .1008, .1009, .1010, .1011, .1012, 1013, .1014, .1015, .1016(e)(5), 1018(o)(1) and (2)
Who Must Be Trained	Each employee prior to being authorized to enter a regulated area involving any chemical in Subpart Z.
Frequency of Training	Upon initial assignment and whenever a new hazard is introduced into the work area and annually thereafter. Exceptions: 1910.1018 requires quarterly training for those who have optional use of respirators.
Content Overview	Each employee prior to being authorized to enter a regulated area shall receive training, including but not limited to the following: 1. The nature of the carcinogenic hazards of the toxic substance including the local and systemic toxicity; 2. The specific nature of the operation involving the toxic substance which could result in exposure; 3. The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination; 4. The purpose for and application of decontamination practices and procedures; 5. The purpose for and significance of emergency practices and procedures; 6. Specific information to aid the employee in recognition and evaluation of conditions and situations which may result in a release of the toxic substance; 7. The purpose for and application of specific first aid procedures and practices; and 8. A review of this section at the initial training and at the annual refresher training to include: Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms and rehearsed in their application.
Suggested Training Objectives	Upon successful completion of training, employees will be trained in the following: 1. The nature of the carcinogenic hazards of the toxic substance, including the local and systemic toxicity; 2. The specific nature of the operation involving the toxic substance which could result in exposure; 3. The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination; 4. The purpose for and application of decontamination practices and procedures; 5. The purpose for and significance of emergency practices and procedures; 6. Specific information which aids the employee in recognition and evaluation of conditions and situations which may result in a release of the toxic substance; 7. A knowledge of the purpose for and application of specific first aid procedures and practices; and 8. After the initial training and at the annual refresher training: Specific emergency procedures that are prescribed, and posted; This includes Emergency procedures, their terms and rehearsal in their application.
Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.141 Sanitation

Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.151 Medical Services and First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Applicable Material Safety Data Sheets Company Procedures

Subject	Vinyl Chloride
Regulatory Reference	29 C.F.R. 1910.1017(j)(1)
Who Must Be Trained	Any employee engauged in vinyl chloride or polyvinyl chloride operations.
Frequency of Training	At employee's first training program and annually thereafter.
Content Overview	Content shall include the following: 1. The nature of the health hazards of chronic exposure to vinyl chloride including specifically the carcinogenic hazard; 2. The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps; 3. The purpose for, proper use, and limitations of respiratory protective devices; 4. The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps; 5. The purpose for, and a description of, the monitoring program; 6. The purpose for, and a description of, the medical surveillance program; 7. Emergency procedures; 8. Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and 9. A review of the vinyl chloride regulations at the employee's first training program, and a review of this regulation annually thereafter.
Suggested Training Objectives	Upon successful completion of training employees will be instructed in the following: 1. The nature of the health hazards from chronic exposure to vinyl chloride including specifically the carcinogenic hazard; 2. The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and the necessary protective steps; 3. The purpose for, proper use, and limitations of respiratory protective devices; 4. The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps; 5. The purpose for, and description of, the monitoring program; 6. The purpose for, and description of, the medical surveillance program; 7. The emergency procedures; and 8. The specific conditions which may result in the release of vinyl chloride.
Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Medical Records 29 C.F.R. 1910.134 Respiratory Protection
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.20 Medical Records 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.151 Medical Services and First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.1200 Hazard Communications
Other Resources	Company Procedures

Subject	Cadmium
Regulatory Reference	29 C.F.R. 1910.1027(m)(4); 57 Fed. Reg. 42,389 (Sept. 14, 1992)
Who Must Be Trained	All employees who are potentially exposed to cadmium.
Frequency of Training	Prior to, or at the time of, initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.
Content Overview	Content shall include the following: 1. The health hazards associated with cadmium exposure with attention to Appendix A of the cadmium regulations; 2. The quantity, location, use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in cadmium exposure, especially exposures above the Permissible Exposure Limit (PEL); 3. The engineering controls and work practices associated with the employee's job assignment; 4. The ways employees can protect themselves from exposure to cadmium, including modifying habits such as personal hygiene and smoking; and the specific procedures the employer has implemented to protect employees from exposure to cadmium, such as using appropriate work practices, emergency procedures, and personal protective equipment; 5. The purpose, proper selection, fit, use, and limitation of respirators and protective clothing; 6. The purpose and description of the medical surveillance program required by the rule; 7. The contents of 29 C.F.R. 1910.1027 and its appendices; 8. The employee's rights of access to his or her exposure and medical records under 29 C.F.R. 1910.20 (g)(1) and (2); and 9. Access to training materials. *NOTE*: The employer shall certify that employees have been trained 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 the training was completed. The certification records shall be prepared at the completion of training and shall be maintained on file for one (1) year beyond the date of training.
Suggested Training Objectives	Upon successful completion of training, employees will understand 1. The health effects associated with cadmium exposure; 2. The quantity, location, use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in cadmium exposure, especially exposures above the Permissible Exposure Limit (PEL); 3. The engineering controls and work practices associated with the employee's job assignment; 4. The ways employees can protect themselves from exposure to cadmium, including modifying habits such as personal hygiene and smoking; and the specific procedures the employer has implemented to protect employees from exposure to cadmium, such as appropriate work practices, emergency procedures, and personal protective equipment; 5. The purpose, proper selection, fit, use, and limitation of respirators and protective clothing;

	6. The purpose and description of the medical surveillance program required by the rule; 7. The contents of 29 C.F.R. 1910.1027 and its appendices; and 8. The employee's rights of access to his or her exposure and medical records under 29 C.F.R. 1910.20 (g)(1) and (2).
Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.141 Sanitation 29 C.F.R. 1910.145 Signs and Tags 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.1200 Hazard Communication 40 C.F.R. Part 11 Respiratory Testing
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.141 Sanitation 29 C.F.R. 1910.145 Signs and Tags 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	OSHA Publication 3136, *Occupational Exposure to Cadmium*

Subject	Benzene
Regulatory Reference	29 C.F.R. 1910.1028(j)(3)
Who Must Be Trained	All employees assigned to a work area where benzene is present.
Frequency of Training	Upon initial assignment and, if exposures are above action level, then training should be provided annually thereafter.
Content Overview	1. Employee training program must meet the requirements for information and training found in the Hazard Communication Rule [29 C.F.R. 1910:1200(h)(1) and (2)]. 2. Employees must be given an explanation of the contents of the OSHA benzene standard including Appendices A & B, and told where copies of the standard are available. 3. Employers must describe to employees the medical surveillance program required by the regulations, and explain the information in Appendix C.
Suggested Training Objectives	Upon successful completion of training employees will understand 1. The hazards of benzene including applicable benzene containing substances, carcinogenic hazards, and specific operations which could lead to benzene exposure; 2. The Permissible Exposure Limit and Short Term Exposure Limits for benzene and what these limits mean; 3. The content of employer's written benzene program; 4. What a regulated area consists of; to include entry authorization, requirements and restrictions; 5. Locate the Material Safety Data Sheet for benzene and identify the signs, labels, and warnings; 6. Personal protective equipment to meet both respiratory and clothing needs; 7. Hygiene practices: to include washing and cleaning procedures, decontamination procedures, clean and change rooms, and activity restrictions; 8. Monitoring procedures and what to do if Permissible Exposure Limits are exceeded; 9. The medical surveillance program and how it is implemented; and 10. The procedures and practices to be followed in emergency situations.
Incorporated by Reference	29 C.F.R. 1910.20 Access To Medical Records 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.145 Signs and Tags 29 C.F.R. 1910.309 Safety Related Practices 29 C.F.R. 1910.1200 Hazard Communication
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.20 Access To Medical Records 29 C.F.R. 1910.120 Hazardous Waste Operation and Emergency Response 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.145 Signs and Tags 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	API Publication 4518, *Measurement of BTEX Emission Fluxes from Refinery Wastewater Impoundments Using Atmospheric Tracer Techniques*, 1991

Subject	Occupational Exposure to Bloodborne Pathogens
Regulatory Reference	29 C.F.R. 1910.1030(g)(2)(i) through (ix)
Who Must Be Trained	Covers all employees who could be "reasonably anticipated" as a result of performing their job duties to have contact with blood and other potentially infectious materials.
Frequency of Training	Initially upon assignment, annual refresher and additional training when changes such as modification of tasks or procedures, or institution of tasks changes employee's exposure.
Content Overview	Training, as a minimum, should consist of the following: 1. The location of regulation and how to obtain a copy and explanation of the regulation; 2. An explanation of the epidemiology and symptoms of bloodborne diseases; 3. An explanation of the modes of transmission of bloodborne pathogens; 4. The employer's exposure control plan and how to obtain a copy; 5. The methods for recognizing tasks that may involve exposure to infectious materials; 6. Engineering controls, work practices, personal protective equipment and other methods used to reduce exposure to infectious diseases; 7. Selection of personal protective equipment; 8. Information on types, use, location, removal, handling, disposal and decontamination of personal protective equipment; 9. Information on Hepatitis B vaccine and that vaccine will be offered free of charge; 10. Information on who to contact and what action to take in emergencies involving infectious materials; 11. Information on procedures if an exposure incident occurs; 12. Information on post-exposure evaluation and follow-up procedures; 13. Information on signs, labels, and color coding requirements of this standard; and 14. Opportunity for interactive questions and answers with person conducting training session.
Suggested Training Objectives	Upon successful completion of training, authorized employees will be trained in 1. How to access a copy of the regulatory text of this standard and an explanation of its contents; 2. The epidemiology and symptoms of bloodborne diseases; 3. The modes of transmission of bloodborne pathogens; 4. The employer's exposure control plan and the means by which the employee can obtain a copy of the written plan; 5. Appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials; 6. The use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment; 7. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment; 8. The basis for selection of personal protective equipment; 9. Information on 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; 10. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

	11. The procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available; 12. Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident; and 13. The signs and labels and/or color coding required by paragraph (g)(1).
Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.151 Medical Services and First Aid
Other Resources	Company Practices

Subject	Ethylene Oxide
Regulatory Reference	29 C.F.R. 1910.1047(j)(3)
Who Must Be Trained	Employees potentially exposed to ethylene oxide at or above the action level or above the excursion limit.
Frequency of Training	Upon initial assignment and annually thereafter.
Content Overview	Employees must be informed of the following: 1. The contents, location and availability of the ethylene oxide regulation, including Appendices A and B; 2. Any operations in their work area where ethylene oxide is present; and 3. The medical surveillance program required by the regulation, with an explanation of Appendix C. Employees must be trained in the following: 1. The physical and health hazards of ethylene oxide; 2. Methods and observations that may be used to detect the presence or release of ethylene oxide in the work area; 3. Measures for employees to protect themselves from ethylene oxide associated hazards, including the procedures the employer has implemented to protect employees from ethylene oxide; and 4. Details of the hazard communication program developed by the employer.
Suggested Training Objectives	Employees should be instructed in the following: 1. The physical and health hazards of ethylene oxide and specific operations which could lead to exposure; 2. The Permissible Exposure Limit and Action Level of ethylene oxide and what they mean; 3. The location and content of the Material Safety Data Sheet for ethylene oxide; 4. The location and content of the employee's written Ethylene Oxide Program; 5. What a regulated area consists of including entry authorization, requirements and restrictions; 6. What personnel protective equipment is required; 7. What the medical surveillance program consists of; 8. Monitoring procedures to detect ethylene oxide in the work area and notification of employees; 9. What procedures are followed in an emergency and work practices to protect from exposure; and 10. The hazard communication program.
Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.134 Respiratory Protection
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.20 Medical Records 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response

	29 C.F.R. 1910.151 Medical Services and First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Procedures

Subject	Formaldehyde in the Workplace
Regulatory Reference	29 C.F.R. 1910.1048(n)
Who Must Be Trained	Any employee exposed to formaldehyde at or above 0.1 parts per million (ppm).
Frequency of Training	Initially, whenever a new exposure to formaldehyde is introduced into the area, and annually thereafter.
Content Overview	Content shall include: 1. A discussion of the contents of this regulation and the contents of the Materials Safety Data Sheet; 2. The purpose for and a description of the medical surveillance program required by this standard, including a. A description of the potential health hazards associated with formaldehyde exposure 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; 3. Descriptions 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; 4. The purpose for, proper use of, and limitations of personnel protective clothing and equipment; 5. Instructions for the handling of spills, emergencies, and clean-up procedures; 6. 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 7. A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency.
Suggested Training Objectives	Upon successful completion of training, employees will understand the following: 1. The contents of the regulation and the contents of the Material Safety Data Sheet; 2. The purpose for and the requirements of the medical removal provision required by this regulation including a. The description of potential health hazards and symptoms of formaldehyde exposure, b. Instructions to immediately report any adverse signs that employee suspects attributable to exposure; 3. The work duties and the safe work practices appropriate for limiting formaldehyde exposure; 4. The purpose for, the proper use of, and limitations of personal protective clothing and equipment; 5. The types of respiratory protection required; 6. How to handle spills, emergencies, and clean-up; 7. The engineering and work practice controls for employee protection and any necessary instruction in the use of these controls; 8. The specific duties of each employee in the case of an emergency; and 9. Access to all written training materials.

Incorporated by Reference	29 C.F.R. 1910.120 Hazard Waste Operations and Emergency Response 29 C.F.R. 1910.1200 Hazard Communication
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1900.1000 Air Contaminants 40 C.F.R. Part 302—CERCLA Hazardous Substance List 40 C.F.R. Part 313—SARA Title III 40 C.F.R. Part 355—SARA Title III—EHS List California Safe Drinking Water and Toxic Enforcement Act
Other Resources	Company Procedures Formaldehyde Institute Publications

Subject	Occupational Exposure to Hazardous Chemicals in Laboratories
Regulatory Reference	29 C.F.R. 1910.1450 (f)
Who Must Be Trained	Laboratory employees engauged in laboratory use of hazardous chemicals who may potentially be exposed to hazardous chemicals in the course of their assignments.
Frequency of Training	Upon initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new potential exposures. Refresher training frequency to be determined by the employer to ensure that the employees are apprised of the hazards of chemicals in their work areas.
Content Overview	Training consists of the following: 1. The contents of 29 C.F.R. 1910.1450 and its appendices; 2. The location, availability and content of the company's Chemical Hygiene Plan; 3. The permissible exposure limits for OSHA regulated substances or the recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard; 4. Signs and symptoms associated with exposure to hazardous chemicals in the laboratory; 5. The location of reference material on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, the MSDS; 6. The methods and observations used to detect the presence or release of a hazardous chemical; 7. The physical and health hazards of the chemicals in the work area; 8. The measures employees can take to protect themselves from these hazards: a. Appropriate work practices, b. Emergency procedures, and c. Personal protective equipment; 9. Applicable details of the employer's written Chemical Hygiene Plan.
Suggested Training Objectives	Upon successful completion of this training, the employees will be instructed in the following: 1. The location and contents of the Chemical Hygiene Plan; 2. The Permissible Exposure Limits (PELs) and or Threshold Limit Values (TLVs) for commonly used hazardous chemicals in the workplace. In addition the employee will be able to identify the location of further information on the PELs and or TLVs for other hazardous chemicals used in their workplace; 3. The signs and symptoms associated with exposure to the hazardous chemicals in their workplace; 4. The location of reference sources on the safe handling, storage and disposal of hazardous chemicals in the workplace; 5. Knowledge and skills necessary for the detection of the presence of hazardous chemicals in the workplace; 6. Knowledge of the physical and health hazards associated with the hazardous chemicals used in their workplace; and 7. Measures employees can take to protect themselves from exposure to hazardous chemicals in the workplace such as appropriate work practices, emergency procedures and selection and use of personal protective equipment.

Incorporated by Reference	29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.109 Explosives and Blasting 29 C.F.R. 1910.134 Respirators 29 C.F.R. 1910.1001–1101 Subpart Z—Toxic and Hazardous Substances 29 C.F.R. 1910.1200 Hazard Communication
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Emergency Plans and Fire Prevention 29 C.F.R. 1910.94 Ventilation 29 C.F.R. 1910.133 Eye and Face Protection 29 C.F.R. 1910.145 Signs and Tags 40 C.F.R. 112.7 Oil Pollution Prevention
Other Resources	29 C.F.R. 1910.1450 Appendix A (Non-Mandatory) 29 C.F.R. 1910.1450 Appendix B (Non-Mandatory) OSHA Publication 3119, *Exposure to Hazardous Chemicals in Laboratories*

Subject	Lead
Regulatory Reference	29 C.F.R. 1910.1025(i)(1) and (2)
Who Must Be Trained	Employees who are subject to exposure to lead at or above action level on any day or who are subject to exposure to lead compounds which may cause skin or eye irritation (Appendix B, Paragraph L).
Frequency of Training	Prior to initial assignment and annually thereafter (Appendix B, Paragraph L).
Content Overview	1. Content of Standard appendices 2. Nature of the operations which could result in exposure to lead above the action level 3. Proper use of respirators 4. a. Purpose and description of medical surveillance program b. Medical removal protection program c. Adverse Health effects (particularly reproductive effects) 5. Engineering controls and work practices 6. Contents of any compliance plan in effect 7. Instruction to employees concerning chelating agents 8. Employee right to access
Suggested Training Objectives	See Above
Incorporated by Reference	29 C.F.R. 1910.20 Access to Medical Records 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1926.56 Hazard Communication 29 C.F.R. 1926.51 Hand Washing Facilities
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1926.62
Other Resources	OSHA Publication 29 C.F.R. 1926.62 Lead Exposure in Construction; Interim Final Rule-Inspection and Compliance Procedures

Subject	Resource Conservation and Recovery Act (RCRA) Personnel Training
Regulatory Reference	40 C.F.R. 264.16
Who Must Be Trained	Hazardous waste treatment, storage and disposal facility personnel.
Frequency of Training	Within six months after date of employment, or before assignment to a facility, or before assignment to a new position at a facility, whichever is later. Annual review of initial training.
Content Overview	1. Facility personnel must complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the training requirements. 2. Personnel must be taught hazardous waste management procedures (including continency plan implementation) relevant to their respective positions. 3. Training program must be designed to ensure that facility personnel can respond effectively to emergencies by familiarizing them with emergency procedures, equipment and systems, including a. Procedures for using, inspecting, and repairing and replacing facility emergency monitoring equipment; b. Key parameters for automatic waste feed cut-off systems; c. Communications or alarm systems. 4. Response to fire or explosions. 5. Response to groundwater contamination incidents, and 6. Shutdown of operations. *NOTE*: Owners/operators are required to keep training records in compliance with Sections 264.16(d) and (e). RCRA permit application must include an outline of the training program.
Suggested Training Objectives	After successfully completing the course material, employees will be able to perform their on-the-job duties in a manner that ensures the facility compliance with the RCRA regulations. These duties include the following: 1. Understanding the Hazardous Waste Management procedures and contingency plan implementation relevant to their position; 2. Responding to facility emergencies by being familiar with facility emergency procedures, equipment, and emergency system; 3. Understanding the procedure for using, inspecting, repairing and replacing facility emergency and monitoring equipment; 4. Key parameters for automatic waste feed cut-off systems; 5. Understanding communications or alarm systems; 6. Understanding response to fires or explosions; 7. Understanding the response to ground-water contamination incidents; and 8. Understanding the shutdown of operations.
Incorporated by Reference	None

Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1910.120 Hazardous Waste Operations & Emergency Response 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.151 Medical & First Aid Services 29 C.F.R. 1910.156 Fire Brigade 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.165 Employee Alarm Systems 40 C.F.R. 265.16 RCRA (interim status) 49 C.F.R. 262.34 Accumulation Time 40 C.F.R. 270 Facility RCRA Permit
Other Resources	Current RCRA permit for site

Subject	Underground Injection Control (UIC) Program
Regulatory Reference	40 C.F.R. 144.51(e)
Who Must Be Trained	Operators of UIC wells.
Frequency of Training	Not specified in the regulation.
Content Overview	Not specified in the regulation. The regulation states that proper operation and maintenance includes "adequate operator staffing and training."
Suggested Training Objectives	See above.
Incorporated by Reference	40 C.F.R. 144.32 Signatories to Permit Applications and Reports 40 C.F.R. 144.33 Area Permits 40 C.F.R. 144.34 Emergency Permits 40 C.F.R. 144.38 Transfer of Permits 40 C.F.R. 144.52 Establishing Permit Conditions 40 C.F.R. 146 Subpart G - Criteria and Standards Applicable to Class I Hazardous Waste Injection Wells 40 C.F.R. 146.8 Mechanical Integrity 40 C.F.R. 146.10 Plugging and Abandoning Class I - III Wells
Other Regulations with Similar Training/Information Provisions	40 C.F.R. 264.16 Training for Personnel at Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities
Other Resources	Site-specific UIC permit Operating procedures Equipment manufacturers guidelines API Publication RP 16E, *Design of Control Systems for Drilling Well Control Equipment*

Subject	Training for Generators of Hazardous Waste Who Accumulate Waste On-Site
Regulatory Reference	40 C.F.R. 262.34(a)(4)
Who Must Be Trained	Facility personnel who are part of the hazardous waste management process.
Frequency of Training	Within six months of employment or assignment to a facility or a new position at a facility. Employee must not work unsupervised until training has been completed. Annual reviews.
Content Overview	Instruction must convey information the employee needs to ensure regulatory compliance. At a minimum, it must be designed to ensure that facility personnel are able to respond effectively to emergencies. Training should include general familiarization, emergency procedures, emergency equipment, and emergency systems, including, when applicable, 1. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment; 2. Key parameters for automatic waste feed cut-off systems; 3. Communications or alarm systems; 4. Response to fires or explosions; 5. Response to groundwater contamination incidents; and 6. Shutdown of operations.
Suggested Training Objectives	See above.
Incorporated by Reference	40 C.F.R. 265.16 Personnel Training 40 C.F.R. 265 - Subpart C Preparedness and Prevention 40 C.F.R. 265 - Subpart D Contingency Plan and Emergency Procedures 40 C.F.R. 268.7(a)(4) Waste Analysis and Recordkeeping
Other Regulations with Similar Training/Information Provisions	40 C.F.R. 144.55 Underground Injection Control (UIC) Program 29 C.F.R. 1910.38 Employee Emergency Plans and Fire Prevention 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication NFPA 472, *Professional Competence of Responders to Hazardous Material Incidents*
Other Resources	Company waste management plan

Subject	Procedures for Transportation Workplace Drug Testing Programs (DOT Anti-Drug Plan: Pipeline Facilities)
Regulatory Reference	49 C.F.R. 199.19 (See 49 C.F.R. 40 for Drug Testing Procedures.)
Who Must Be Trained	All employees who perform operating, maintenance, or emergency response functions on a pipeline or LNG facility regulated by Parts 192, 193 or 195 of Chapter 49 of the regulations. Additional requirements for supervisory personnel: Those who determine whether an employee must be drug tested.
Frequency of Training	Not specified, but training to be included in the employee assistance program (EAP).
Content Overview	Employee training covers the following elements: 1. Display and distribution of informational material; 2. Display and distribution of a community service hotline telephone number for employee assistance; and 3. Display and distribution of the employer's policy regarding the use of prohibited drugs. For supervisory personnel, training must include one 60-minute period of training on the specific contemporaneous physical behavioral and performance indicators of probable drug use.
Suggested Training Objectives	Upon successful completion of training, employees will understand 1. Informational material; 2. Community service hotline; and 3. Employer's policy regarding the use of prohibited drugs.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	46 C.F.R. Parts 4, 5, 16, U.S. Coast Guard 49 C.F.R. Parts 391, FHA 49 C.F.R. Part 219, Federal Railroad Administration
Other Resources	Company DOT Anti-Drug Plan, Company Drug Abuse Policies, and Company Employee Assistance Program National Institute of Drug Abuse (NIDA) publications 49 C.F.R. 40 Procedures for Transportation Workplace Drug Testing Programs

Subject	Training for Safe Transportation of Hazardous Materials
Regulatory Reference	49 C.F.R. 172.704
Who Must Be Trained	"Hazardous material employee": An individual who is employed by a HAZMAT employer and who, in the course of employment, directly affects hazardous materials transportation safety, and also includes an individual who, during the course of employment, 1. Loads, unloads or handles hazardous materials; 2. Reconditions, repairs, or tests or otherwise represents containers, drums or packagings as qualified for use in the transportation of hazardous materials; 3. Prepares hazardous materials for transportation; 4. Is responsible for the safety of the transportation of hazardous materials; and 5. Operates vehicle used to transport hazardous materials. The term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce.
Frequency of Training	If employed after July 2, 1993, training must be completed within 90 days of initial assignment. For employees hired on or before July 2, 1993, training must be completed prior to October 1, 1993, or within 90 days of when employee's responsibilities change. Recurrent training must be given at least once every two years thereafter.
Content Overview	Employee training will include the following elements: 1. Each HAZMAT employee shall be provided general awareness/familiarization training in the requirements of this subchapter and to enable the employee to recognize and identify hazardous materials consistent with hazard communication standards of the HAZMAT regulations; 2. Each HAZMAT employee shall be provided function-specific training concerning requirements of the HAZMAT regulations applicable to the duties of the employee; 3. Each HAZMAT employee shall receive safety training concerning emergency response information, measures to protect the employee from hazards associated with hazardous materials, self-protection measures, and methods and procedures for avoiding accidents; and 4. Driver training.
Suggested Training Objectives	Upon successful completion of training, employees will be able to: 1. Recognize and identify hazardous materials consistent with the Hazard Communication standards; 2. Understand specific requirements of this regulation applicable to the employee's job; 3. Understand self-protection and employer-provided protection measures; 4. Understand emergency response procedures and accident prevention methods and procedures; and 5. Possess skills and knowledge required by transportation mode-specific training. *NOTE (A)*: To the extent that training conducted to comply with 29 C.F.R. 1910.120 or 40 C.F.R. 311.1 (see Incorporated by Reference) addresses training specified in 49 C.F.R. 172.704(a), such training would not have to be duplicated. *NOTE (B)*: In addition to usual documentation, this rule requires, per 172.704 paragraph (d)(4), recording of the name and address of the person providing the training, and certification that the HAZMAT employee has been trained and tested as required by the regulation Subpart H.

Incorporated by Reference	29 C.F.R. 1910.120 Hazardous Waste Operations & Emergency Response 29 C.F.R. 1910.1200 Hazard Communication 40 C.F.R. 311.1 Worker Protection Standards for Hazardous Waste Operations and Emergency Response 49 C.F.R. 130.1-130.33 Oil Spill Prevention and Response Plans 49 C.F.R. 172 Subpart G—Emergency Response Information 49 C.F.R. 383, 387, 390–399 Commercial Drivers License ICAO Technical Instructions or IMDG Code
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans and Fire Prevention Plans 29 C.F.R. 1910.132 Personal Protective Equipment 29 C.F.R. 1910.157 Portable Fire Extinguishers
Other Resources	Company Policies

Subject	Hazardous Materials—General Requirements for Shipments and Packaging(s)
Regulatory Reference	49 C.F.R. 173.1(b)
Who Must Be Trained	All officers, agents, and employees having any responsibility for preparing hazardous materials for shipment.
Frequency of Training	If employed after July 2, 1993, training must be completed within 90 days of initial assignment. For employees hired on or before July 2, 1993, training must be completed prior to October 1, 1993, or within 90 days of when employee's responsibilities change. Recurrent training must be given at least once every two years thereafter.
Content Overview	Employee training will include the following elements: 1. Each HAZMAT employee shall be provided general awareness/familiarization training in the requirements of this subchapter and to enable the employee to recognize and identify hazardous materials consistent with hazard communication standards of the HAZMAT regulations; 2. Each HAZMAT employee shall be provided function-specific training concerning requirements of the HAZMAT regulations applicable to the duties of the employee; 3. Each HAZMAT employee shall receive safety training concerning emergency response information, measures to protect the employee from hazards associated with hazardous materials, self-protection measures, and methods and procedures for avoiding accidents; and 4. All covered employees must be instructed in the "applicable" requirements of the HAZMAT regulations.
Suggested Training Objectives	Upon successful completion of training, employees will be able to understand: 1. The physical characteristics, properties and hazards associated with the hazardous materials shipped; 2. The use of the DOT tables (172.101) to properly classify the hazardous materials shipped; and how to properly prepare the necessary shipping papers; 3. How to determine the proper packaging or shipping container required for shipment of the hazardous material; and 4. The requirements necessary to safely load and unload hazardous materials.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.110 Storage and Handling of LPGs 29 C.F.R. 1910.1200 Hazard Communication 49 C.F.R. 130.1-130.33 Oil Spill Prevention and Response Plans 49 C.F.R. 172.602 Emergency Response Information 49 C.F.R. 172.604 Emergency Response Telephone Number
Other Resources	DOT Emergency Response Guidebook P5800.6 (1993) ANSI/NFPA 472 Standard for Professional Competence of Responders for Hazardous Incidents

Subject	Transportation of Flammable Cryogenic Liquids
Regulatory Reference	49 C.F.R. 177.816 *NOTE*: This training covers *all* HAZMAT drivers, not just drivers that handle flammable cryogenic liquids.
Who Must Be Trained	Each HAZMAT employee who will operate a motor vehicle, including drivers of vehicles transporting flammable cryogenic liquids. These are defined as: a refrigerated liquefied gas having a boiling point colder than -130°F. (-90°C.). Reference: §173.300(f).
Frequency of Training	If employed after July 2, 1993, training must be completed within 90 days of initial assignment. For employees hired on or before July 2, 1993, training must be completed prior to October 1, 1993, or within 90 days of when employee's responsibilities change. Recurrent training must be given at least once every two years thereafter.
Content Overview	Employee training will include the following elements: 1. Each HAZMAT employee shall be provided general awareness/familiarization training in the requirements of this subchapter and to enable the employee to recognize and identify hazardous materials consistent with hazard communication standards of the HAZMAT regulations; 2. Each HAZMAT employee shall be provided function-specific training concerning requirements of the HAZMAT regulations applicable to the duties of the employee; 3. Each HAZMAT employee shall receive safety training concerning emergency response information, measures to protect the employee from hazards associated with hazardous materials, self-protection measures, and methods and procedures for avoiding accidents; 4. Driver training must include the following subjects: a. Pre-trip safety inspection, b. Use of vehicle controls and equipment including operation of emergency equipment, c. Operation of the vehicle, including turning, backing, braking, parking, handling, and vehicle characteristics, including those that affect vehicle stability, d. Procedures for navigating tunnels, bridges, and railroad crossings, e. Requirements pertaining to attendance of vehicles, parking, smoking, routing, and incident reporting, f. Loading and unloading of materials, including i. Compatibility and segregation of cargo in a mixed load, ii. Package handling methods, and iii. Load securement; 5. Drivers must be trained in the applicable requirements of 49 C.F.R. 383, (Commercial drivers' license standards), .387, (Financial responsibility for motor carriers), .390, (Federal motor carrier safety regulations), and .399, (Employee safety and health standards); 6. Carriers or drivers of motor vehicles containing flammable gas material that is a cryogenic liquid must carry the following information in written form: a. General precautions, b. Manual venting instructions, c. Emergency procedures, and d. Names and numbers of emergency contacts;

	7. Specialized training requirements for cargo tanks and portable tanks is required. In addition to the above, each person who operates a cargo tank with a capacity of 1000 gallons or more must receive training applicable to the HAZMAT regulations, and must receive training to include the following: a. Operation of emergency control features of the cargo tank or portable tank, b. Special vehicle handling characteristics including: high center of gravity, fluid load subject to surge, effects of fluid-load surge on braking, characteristic differences in stability among baffled, unbaffled and multi-compartmented tanks and effects of partial loads on vehicle stability, c. Loading and unloading procedures, d. The properties and hazards of the material transported, and e. Retest and inspection requirements for cargo tanks. *NOTE*: Training requirements may be satisfied by compliance with the current requirements for a CDL with a tank vehicle or HAZMAT endorsement.
Suggested Training Objectives	Upon successful completion of training, employees will be able to understand: 1. The requirements in the subchapter applicable to cryogenic liquids; 2. The requirements in the federal motor carrier safety regulations parts 390-397 applicable to drivers; 3. The properties and potential hazards of the particular material to be transported; 4. How to safely operate the type of cargo tank the driver will operate including its handling features and loading limitations; and 5. The procedures to be followed in case of accident or other emergency, including unanticipated pressure increase or decrease.
Incorporated by Reference	§§390–397 Federal Motor Carrier Safety Regulations §391.51 Driver Qualification Files
Other Regulations with Similar Training/Information Provisions	§177.818 Special Instructions; Flammable Cryogenic Liquids 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	§173.300(f) Definitions; Cryogenic Liquid DOT Emergency Response Guidebook P5800.6 (1993)

Subject	Nondestructive Testing of Gas and Hazardous Liquid Pipeline Welds
Regulatory Reference	49 C.F.R. 192.243 and 195.234
Who Must Be Trained	Personnel who perform nondestructive testing of welds on gas and hazardous liquid pipelines.
Frequency of Training	Not specified in regulations, although prior to initial assignment for testing welds on gas pipelines regulated by §192, or hazardous liquid pipelines regulated by §195, would be appropriate.
Content Overview	Training covers the following elements: 1. Training on the established written procedures for nondestructive testing; and 2. The above training must be on the equipment employed in the testing.
Suggested Training Objectives	Upon successful completion of training, employees will understand: 1. The nondestructive testing procedure used; 2. How the equipment is employed in the testing following the established procedures; 3. The established procedures for the proper interpretation of each nondestructive test of a weld; and 4. The set percentages of nondestructive tests that must be done daily in a random selection according to their class location, and the necessary record-keeping requirements.
Incorporated by Reference	§192.241(b), (c) Inspection and Test of Welds §195.228 Welds and Welding Inspection: Standards of Acceptability
Other Regulations with Similar Training/Information Provisions	None
Other Resources	Manufacturer's Information API Standard 1104, *Welding of Pipelines and Related Facilities*, Seventeenth Edition, September 1988 American Society for Testing and Materials (ASTM) standards American Welding Society (AWS) standards

Subject	Qualifying Persons to Make Joints on Plastic Pipe
Regulatory Reference	49 C.F.R. 192.285
Who Must Be Trained	Personnel who make plastic pipe joints.
Frequency of Training	Not specified, but training is required for anyone making joints on plastic pipes used in gas pipeline service. Retraining required if the conditions of 192.285(c) are not met.
Content Overview	Persons making plastic pipe joints must be qualified by: 1. Training in the use of the applicable joining procedure; 2. Making a specimen joint that passes the following inspection and test methods: a. Visually examined and found to have the same appearance as a joint or photographs of a joint that is acceptable under the procedure or b. In the case of heat fusion, solvent cement or adhesive joint: i. It must be tested under any method listed under §192.283(a), ii. Examination by ultrasonic inspection and found to contain no flaws that would cause failure, or iii. Cut into at least 3 longitudinal straps, each of which is: a. Visually examined and found not to contain voids or discontinuities on the cut surfaces of the joint area, and b. Deformed by bending, torque or impact, and if failure occurs, it must not initiate in the joint area. *NOTE:* Each operator must establish a method to determine that persons making joints are qualified in accordance with 192.285.
Suggested Training Objectives	Upon successful completion of training, employees will understand: 1. The techniques used in making plastic pipe joints; 2. How to use the equipment and materials used in plastic pipe joint making; and 3. The methods used for testing plastic pipe joints.
Incorporated by Reference	§192.513 Test Requirements for Plastic Pipelines §192.283 Plastic Pipe; Qualifying Joining Procedures
Other Regulations with Similar Training/Information Provisions	None
Other Resources	Manufacturer's Information ASTM D 2513-87, *Standard Specification for Thermoplastic Gas Pressure Piping Systems* ASTM D 2517-73, *Standard Specification for Reinforced Epoxy Resin Gas Pressure Pipe and Fittings*

Subject	Plastic Pipe, Inspection of Joints
Regulatory Reference	49 C.F.R. 192.287
Who Must Be Trained	Personnel who inspect plastic pipe joints.
Frequency of Training	Not specified, but training required for persons inspecting joints on plastic pipes used in gas pipeline service.
Content Overview	Inspectors must be qualified by appropriate training or experience in evaluating the acceptability of plastic pipe joints made under the applicable joining procedure.
Suggested Training Objectives	Upon successful completion of training, employees must be able to demonstrate knowledge of 1. The methods used to evaluate the acceptability of plastic pipe joints, and 2. The criteria used to determine the acceptability of plastic pipe joints.
Incorporated by Reference	§192.273(c) General §192.285(b) Plastic Pipe; Qualifying Persons to Make Joints
Other Regulations with Similar Training/Information Provisions	§192.283 Plastic Pipe; Qualifying Joining Procedures §192.513 Test Requirements for Plastic Pipelines
Other Resources	Manufacturer's Information ASTM D 2513-87, *Standard Specification for Thermoplastic Gas Pressure Piping Systems* ASTM D 2517-73, *Standard Specification for Reinforced Epoxy Resin Gas Pressure Pipe and Fittings*

Subject	Requirements for Corrosion Control (Gas Pipelines)
Regulatory Reference	49 C.F.R. 192.453
Who Must Be Trained	Personnel who design, install or operate and maintain cathodic protection programs for gas pipelines.
Frequency of Training	Not specified, but only a person qualified by experience and training may carry out corrosion control on gas pipelines.
Content Overview	Regulations specify that the procedures for implementing the requirements of the corrosion control regulations must be carried out by a person "qualified by experience and training" in pipeline corrosion control methods.
Suggested Training Objectives	Upon successful completion of training, employees will understand: 1. The requirements for external corrosion control and how to meet these requirements; 2. The requirements for supplying cathodic protection on pipelines installed before August 1, 1971; 3. The requirements for examining buried pipelines that have been exposed, and the remedial action to take if there are signs of corrosion; 4. The various acceptable means of providing external protective coating and how to inspect pipe during installation to ensure against detrimental damage to the pipe; 5. The requirements for providing cathodic protection that complies with the criteria contained in Appendix D of Subpart I of 49 C.F.R. How to monitor external corrosion provided by cathodic protection at least once a year, and rectifiers at least every two months. Describe the requirements for reevaluating the need to cathodically protect unprotected pipelines; and 6. The need to electrically isolate the buried pipeline from other underground metallic structures, and the need for inspections and test to assure electrical isolation and the protection that must be provided to pipelines in areas subject to lightning strikes such as lines in close proximity to electrical transmission tower footings, ground cables or counterpoise.
Incorporated by Reference	49 C.F.R. Part 192 Subpart I—Requirements for Corrosion Control
Other Regulations with Similar Training/Information Provisions	None
Other Resources	Manufacturer's Information API Standard 1104, *Welding of Pipelines and Related Facilities*, Seventeenth Edition, September 1988

Subject	DOT Alcohol Misuse Prevention Program: Pipeline Facilities
Regulatory Reference	49 C.F.R. 199.239
Who Must Be Trained	All employees who perform operating, maintenance, or emergency response functions on a pipeline or LNG facility regulated by Parts 192, 193, or 195 for Chapter 49 of the regulations, and applicable supervisors (199.205). Additional requirements for breath alcohol technicians: those qualified to operate an evidential breath testing device (EBT) (40.51).
Frequency of Training	Prior to the start of alcohol testing for already-covered employees, and to each employee subsequently hired for or transferred to a covered position.
Content Overview	Employee training consists of providing educational materials that explain alcohol misuse requirements and the operator's policies and procedures to meet DOT requirements. Supervisory personnel, designated to determine whether reasonable suspicion exists to require covered employee alcohol testing, must receive at least 60 minutes of training on indicators of probable alcohol misuse (199.241). Breath alcohol technical training covers knowledge and demonstrative requirements.
Suggested Training Objectives	Employee will have received written materials covering the following: 1. Person designated to answer questions about alcohol misuse; 2. Categories of employees subject to this regulation; 3. Period of workday to be in compliance; 4. Prohibited conduct; 5. Testing circumstances; 6. Test procedures, employee protection, test validity safeguards; 7. Test submission requirements; 8. What constitutes "refusal to submit" and consequences; 9. Consequences of finding .02-.04 alcohol concentration; 10. Consequences of violating the regulation's prohibitions; 11. Effects of alcohol misuse, signs, symptoms, EAP availability; 12. Optional: Company policies and provisions concerning alcohol. Upon successful completion, the supervisor will have received at least 60 minutes of training on physical, behavioral, speech, and performance indicators of probable alcohol misuse (199.241).
Incorporated by Reference	49 C.F.R. Part 40 49 C.F.R. Parts 191, 192, 193, 195, and 199
Other Regulations with Similar Training/Information Provisions	46 C.F.R. Part 16 U.S. Coast Guard 49 C.F.R. Part 219 Federal Railroad Administration 49 C.F.R. Part 382 Federal Highway Administration

Other Resources	Company DOT anti-drug/alcohol plan, Company drug/alcohol abuse policies, and Company employee assistance program. National Highway Traffic Safety Administration (NHTSA) courses of instruction. Specific EBT manufacturer's Instruction for Operation Maintenance, and Calibration of Equipment. "Alcohol & Drug Rules—An Overview," U.S. Department of Transportation, February 1994.

Subject	Federal Motor Carrier Safety Regulations—Truck/Trailer and/or Cargo Tank Safety
Regulatory Reference	49 C.F.R. 390.3(e)(2)
Who Must Be Trained	Any driver or employee. Driver means any person who operates a commercial motor vehicle. Employee means the following: a. A driver, b. A mechan, c. A freight handler, and d. Any individual, other than an employee, who is employed by an employer and who in the course of employment directly affects commercial motor vehicle safety. Does not include federal, state or local employees.
Frequency of Training	Not specified, but all drivers and employees must be instructed.
Content Overview	Drivers and employees must be instructed regarding, and must comply with all "applicable" regulations in the Federal Motor Carrier Safety Regulations (49 C.F.R. 350–399). *NOTE*: The regulations contain exceptions to coverage in 390.3(f).
Suggested Training Objectives	Upon successful completion of training, employees will understand and comply with 1. The Federal Motor Carrier Safety Regulations and steps necessary to comply with them; 2. The drivers qualifications and the required records and files that must be established and kept on each driver; 3. The requirements for proper maintenance inspections and records documenting these; and 4. The material on the commercial drivers license test sufficient to meet all requirements.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	None
Other Resources	API Recommended Practice 1112, *Developing a Highway Emergency Response Plan for Incidents Involving Hazardous Materials*, Second Edition, March 1992

Subject	Instruction to Workers—(Workers Engaged in Activity Licensed by the Nuclear Regulatory Commission)
Regulatory Reference	10 C.F.R. 19.12 (Usually specified by state license.)
Who Must Be Trained	All individuals working in or frequenting any portion of a restricted area. Restricted area means an area, access to which is limited for the purpose of protecting against risks from exposure to radiation and radioactive materials.
Frequency of Training	Not specified, but recommended upon assignment.
Content Overview	Training consists of instruction in the following: 1. Information on the storage, transfer, or use of radioactive materials or on radiation in such portions of the restricted areas; 2. The health protection problems associated with radiation exposure; 3. Precautions to minimize exposure; 4. The purpose and function of protective devices employed; 5. Instruction in, and instruction to observe, the applicable Nuclear Regulatory Commission regulations and licenses for protection of personnel from exposure to radiation; 6. The responsibility to report promptly to the licensee any condition which might lead to a violation of Commission regulations or licenses, or unnecessary exposure to radiation; 7. The appropriate response to warnings made in the event of any unusual occurrence or malfunction that might involve exposure to radiation; and 8. Radiation exposure reports which workers may request. *NOTE*: The extent of the instructions must be commensurate with potential radiological health protection problems in the restricted area.
Suggested Training Objectives	Upon successful completion of training, employee should understand 1. The health protection problems associated with exposure to radioactive materials and radiation; 2. The precautions or procedures to minimize exposure; 3. The purposes and functions of protective devices that are used; 4. Procedures for reporting any condition which may lead to or cause unnecessary exposure to radiation or radioactive materials; 5. Procedures that should be followed for response to warning involving exposure to radiation or radioactive material; and 6. The procedure for individual's access to radiation exposure reports.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	10 C.F.R. 20.206 Instruction to Personnel 29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.38 Employee Emergency and Fire Prevention Plans 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910.119 Process Safety Management of Highly Hazardous Chemicals 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response

29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags
29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout)
29 C.F.R. 1910.165 Employee Alarm Systems
29 C.F.R. 1910.1200 Hazard Communication

Other Resources

Facility Safe Practices Procedures
Atomic Energy Act of 1954, as amended (68 Stat. 919)
Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242)

Subject	Radiation Protection—Instruction to Personnel
Regulatory Reference	10 C.F.R. 20.206 (Usually specified by state license.)
Who Must Be Trained	All individuals working in or frequenting any portion of a restricted area. Restricted area means an area, access to which is limited for the purpose of protecting against risks from exposure to radiation and radioactive materials.
Frequency of Training	Not specified, but recommended upon assignment.
Content Overview	Training consists of instruction in the following: 1. Information on the storage, transfer, or use of radioactive materials or on radiation in such portions of the restricted areas; 2. The health protection problems associated with radiation exposure; 3. Precautions to minimize exposure; 4. The purpose and function of protective devices employed; 5. Instruction in, and instruction to observe, the applicable Nuclear Regulatory Commission regulations and licenses for protection of personnel from exposure to radiation; 6. The responsibility to report promptly to the licensee any condition which might lead to a violation of Commission regulations or licenses, or unnecessary exposure to radiation; 7. The appropriate response to warnings made in the event of any unusual occurrence or malfunction that might involve exposure to radiation; and 8. Radiation exposure reports which workers may request. *NOTE*: The extent of the instructions must be commensurate with potential radiological health protection problems in the restricted area.
Suggested Training Objectives	Upon successful completion of training, employee should understand 1. The health protection problems associated with exposure to radioactive materials and radiation; 2. The precautions or procedures to minimize exposure; 3. The purposes and functions of protective devices that are used; 4. Procedures for reporting any condition which may lead to or cause unnecessary exposure to radiation or radioactive materials; 5. Procedures that should be followed for response to warning involving exposure to radiation or radioactive material; and 6. The procedure for individual's access to radiation exposure reports.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	10 C.F.R. 19.12 Instructions to Workers 29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.38 Employee Emergency and Fire Prevention Plans 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910.119 Process Safety Management of Highly Hazardous Chemicals 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout)

	29 C.F.R. 1910.165 Employee Alarm Systems 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Practices Atomic Energy Act of 1954, as amended (68 Stat. 919) Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242)

Subject	General Requirements for Issuance of Specific Licenses for Byproduct Material (NRC)
Regulatory Reference	10 C.F.R. 30.33(3) (Usually specified by state license.)
Who Must Be Trained	Applicants for license to manufacture, use, etc. radioactive byproduct material.
Frequency of Training	Not specified.
Content Overview	One requirement for issuance of a license is that the applicant is qualified by "training and experience" to use the material for the purpose requested in such manner to protect health and minimize danger to life or property. No detail provided.
Suggested Training Objectives	Upon successful completion of training, employee should understand 1. The health protection problems associated with exposure to radioactive materials and radiation; 2. The precautions or procedures to minimize exposure; 3. Demonstrate the purposes and functions of protective devices that are used; 4. The procedures for reporting any condition which may lead to or cause unnecessary exposure to radiation or radioactive materials; 5. The types of equipment used to monitor employee work areas and personnel exposure; 6. The procedures for wipe testing of sealed radiation sources, including record-keeping; 7. Procedures to be used for response to warning involving exposure to radiation or radioactive material; and 8. The procedure for individual's access to radiation exposure reports.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	10 C.F.R. 19.12 Instructions to Workers 29 C.F.R. 1910.20 Access to Employee Exposure and Medical Records 29 C.F.R. 1910.38 Employee Emergency Plans and Fire Prevention Plans 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910.119 Process Safety Management of Highly Hazardous Chemicals 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.147 The Control of Hazardous Energy (Lockout/Tagout) 29 C.F.R. 1910.165 Employee Alarm Systems 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Company Practices Atomic Energy Act of 1954, as amended (68 Stat. 919) Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242)

MODULE SET E—EMERGENCY RESPONSE

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Subject	Employee Emergency Action Plans and Fire Prevention Plans; Employee Alarm Systems
Regulatory Reference	29 C.F.R. 1910.38(a)(5), (b)(4) 29 C.F.R. 1910.165(b)(4) (See individual OSHA standards to determine whether the emergency action, fire prevention and alarm plans described below apply.)
Who Must Be Trained	Not specified in the regulations, but presumably all employees affected in the event of an emergency.
Frequency of Training	Initially and when the plans, employees or responsibilities change.
Content Overview	The employer must review the following with each employee: 1. Those parts of the emergency plan which the employee must know to protect the employee in the event of an emergency; Required elements of the plan are listed in 29 C.F.R. 1910.38(a); 2. Employees must be apprised of fire hazards of the materials and processes to which employees are exposed; and 3. The employer must review with the employee those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency; Required elements of the plan are listed in 29 C.F.R. 1910.38(b)(2).
Suggested Training Objectives	Upon successful completion of training, employees will understand and be able to explain/describe the following: 1. The procedures for reporting an emergency; 2. The alarms used at the location to alert employees to emergency situations; 3. The key parts of emergency action plan and the role of each employee; 4. The procedures for the evacuation of personnel from the work area, from the plant, or a surrounding area; and 5. Location of written plan.
Incorporated by Reference	29 C.F.R. 1910.36 General Egress Requirements 29 C.F.R. 1910.37 Means of Egress 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.119 Process Safety Management (Proposed) 29 C.F.R. 1910.145 Specifications for Accident Prevention Signs and Tags 29 C.F.R. 1910.164 Fire Detection Systems
Other Resources	API Recommended Practice 750, *Management of Process Hazards*, First Edition, January 1990 OSHA Publication 3132, *Process Safety Management*, 1992 OSHA Publication 3133, *Process Safety Management Guidelines for Compliance*, 1992 NFPA 74, *Fire Alarm Systems* NFPA 101, *Exit Access* NFPA 121, *Emergency Egress*

Subject	Flammable and Combustible Liquids
Regulatory Reference	29 C.F.R. 1910.106(b)(5)(vi)(v)(2) and (3)
Who Must Be Trained	Employees involved in the transfer and storage of flammable and combustible liquids in areas subject to flooding.
Frequency of Training	Not specified, but recommended upon initial assignment.
Content Overview	Basic employee training will include the following elements: 1. Detailed printed instructions of what to do in flood emergencies and proper posting of these instructions; and 2. Location and operation of valves and other equipment required to effect the requirements of the flood emergency instructions.
Suggested Training Objectives	Upon completion of training, the employee will be informed of the following: 1. The contents of the written emergency plan as it relates to flood emergencies; 2. The location of the written instructions; 3. The location of valves and equipment required to affect the flood emergency instructions; and 4. Proper operation of valves and equipment.
Incorporated by Reference	29 C.F.R. 1910.159 Fixed Fire Suppression Equipment
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Emergency Plans
Other Resources	NFPA 30, *Flammable Liquids Code* NFPA 321, *Classification of Flammable Liquids* NFPA 325M, *Properties of Flammable Liquids* Company Spill Prevention Control and Countermeasure Plans API Bulletin D16, *Suggested Procedure for Development of Spill Prevention Control and Countermeasure Plans, (To Assist Conformance to Requirements of Title 40, Code of Federal Regulations, Part 112),* Second Edition, August 1989

Subject	Hazardous Waste Operations and Emergency Response— General Training
Regulatory Reference	29 C.F.R. 1910.120(e)
Who Must Be Trained	All employees working on site exposed to hazardous substances, health hazards, or safety hazards, and supervisors and management responsible for the site.
Frequency of Training	Prior to engaging in hazardous waste operations that could result in hazard exposure. Work experience allowed for equivalency. Eight hours refresher training annually. See (e)(3) for hours of training required.
Content Overview	1. Names of personnel and alternates responsible for site safety and health. 2. Safety, health and other hazards present on the site. 3. Use of personal protective equipment. 4. Work practices by which the employer can minimize risks from hazards. 5. Safe use of engineering controls and equipment on site. 6. Medical surveillance requirements. 7. The contents of 1910.120(b)(4)(ii)(G) through (J): a. Decontamination procedures, b. Emergency response plan, c. Confined space entry procedures, and d. Spill containment program. *NOTE*: Certification required.
Suggested Training Objectives	Sufficient training to protect all categories of employees exposed to hazardous substances.
Incorporated by Reference	29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.165 Employee Alarm Systems 29 C.F.R. 1910.1200 Hazard Communication 29 C.F.R. 1910 Subpart Z—Exposure Limits 29 C.F.R. 1926 Subpart P—Site Excavation RCRA, 42 USC 6901 ET SEQ NIOSH—Recommendations for Occupational Health Standards American Council of Governmental and Industrial Hygienist publication, *Threshold Limit Values and Biological Exposure Indices for 1986-87* U.S. DOT Emergency Response Guidebook
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans and Fire Prevention 29 C.F.R. 1910.119 Process Safety Management 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.151 Medical Services/First Aid 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.1200 Hazard Communication NFPA 472, *Professional Competence of Responders to Hazardous Material Incidents*

Other Resources

OSHA Instruction DFO CPL 2.70, *Special Emphasis Program: Hazardous Waste Sites*

OSHA Instruction DFO CPL 2-2.37A, *Technical Assistance and Guidelines for Superfund and Other Hazardous Waste Site Activities*

OSHA Instruction DTS CPL 2.74, *Hazardous Waste Activity Form OSHA 175*

U.S. Department of Labor, Occupational Safety and Health Administration, *Hazardous Waste Inspections Reference Manual*

Memorandum of Understanding Among the National Institute for Occupational Safety and Health Administration, the United States Coast Guard, and the United States Environmental Protection Agency, *Guidance for Worker Protection During Hazardous Waste Site Investigations and Clean-up and Hazardous Substance Emergencies*

U.S. Environmental Protection Agency, *National Priorities List*

Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Field Standard Operating Procedures 7, *The Decontamination of Response Personnel*

U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Field Standard Operating Procedures 9, *Preparation of Site Safety Plan*

U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Environmental Response Team, *Standard Operating Safety Guidelines*

NIOSH, OSHA, USCG, EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*

U.S. Environmental Protection Agency EPA/625/9-85/006, *Protecting Health and Safety at Hazardous Waste Sites: An Overview*

U.S. Department of Health and Human Services, Public Health Service Centers for Disease Control, National Institute for Occupational Safety and Health, NIOSH Worker Bulletin, *Hazardous Waste Sites and Hazardous Substance Emergencies*

U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, NIOSH, *Personal Protective Equipment for Hazardous Material Incidents: A Selection Guide*

International Association of Fire Chiefs Foundation, *Fire Service Emergency Management Handbook*

U.S. Department of Transportation, *Emergency Response Guidebook*

Federal Emergency Management Agency, *Report to the Congress on Hazardous Materials Training, Planning and Preparedness*

Alan V. Brunacini and J. David Beageron, National Fire Protection Association, *Workbook for Fire Command*

Oklahoma State University, Fire Protection Publication, *Incident Command System*

Alan V. Brunacini and J. David Beageron, National Fire Protection Association, *Fire Command*

Chemical Manufacturers Association, *Site Emergency Response Planning*

Environmental Protection Agency NRT-1, *Hazardous Materials Emergency Planning Guide*

U.S. Department of Transportation, *Community Teamwork: Working Together to Promote Hazardous Materials Transportation Safety*

Federal Emergency Management Agency FEMA 141, *Disaster Planning Guide for Business and Industry*

Subject	Hazardous Waste Operations and Emergency Response— First Responder Awareness Level
Regulatory Reference	29 C.F.R. 1910.120(e), (q)(6)(i) (See also Section 120(e)—General Training.)
Who Must Be Trained	Individuals who are likely to witness or discover a hazardous material release and who have been trained to initiate an emergency response sequence by notifying the proper authorities.
Frequency of Training	Upon initial assignment (can substitute experience per (q)(6)(i) and annually thereafter).
Content Overview	1. An understanding of what hazardous substances are, and the risks associated with them in an incident. 2. An understanding of the potential outcomes associated with an emergency created when hazardous substances are present. 3. The ability to recognize the presence of hazardous substances in an emergency. 4. The ability to identify the hazardous substances, if possible. 5. 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. DOT Emergency Response Guidebook. 6. The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.
Suggested Training Objectives	Upon successful completion of training employees will be instructed in the following: 1. The role of the First Responder, emergency procedures, and how to use the latest edition of the DOT Emergency Response Handbook; 2. Define "Hazards" and "Risk"; 3. The Types of Hazards; 4. Hazardous material present at your facility; and 5. Potential and possible hazardous materials present at your facility.
Incorporated by Reference	See Incorporated by Reference—General Training, Section 120(e).
Other Regulations with Similar Training/Information Provisions	See Other Regulations with Similar Training/Information Provisions—General Training, Section 120(e).
Other Resources	See Other Resources—General Training, Section 120(e).

Subject	Hazardous Waste Operations and Emergency Response— First Responder Operations Level
Regulatory Reference	29 C.F.R. 1910.120(e), (q)(6)(ii) See also Section 120(e)—General Training
Who Must Be Trained	First responders—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 persons, property, or the environment from effects of the release.
Frequency of Training	Prior to being allowed to take part in actual emergency operations. Eight hours of training required *or* have sufficient experience to demonstrate competency in required training. Annual refresher training required.
Content Overview	1. Knowledge of the basic hazard and risk assessment techniques. 2. How to select and use proper personal protective equipment provided to the first responder operational level. 3. An understanding of basic hazardous materials terms. 4. How to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit. 5. How to implement basic decontamination procedures. 6. An understanding of the relevant standard operating procedures and termination procedures.
Suggested Training Objectives	Upon successful completion of training employees will be instructed in the following: 1. Topics which are required under the "First Responder Awareness Level;" 2. Basic "Hazards" and "Risk" assessment techniques; 3. The use of personal protective equipment and state when it is required; 4. Basic "Hazwoper" terms; 5. Basic control, containment, and confinement; 6. Steps for implementation of basic decontamination procedures; and 7. The standard operating and emergency procedures for your operating unit.
Incorporated by Reference	See Incorporated by Reference—General Training, Section 120(e).
Other Regulations with Similar Training/Information Provisions	See Other Regulations with Similar Training/Information Provisions—General Training, Section 120(e).
Other Resources	See Other Resources—General Training, Section 120(e).

Subject	Hazardous Waste Operations and Emergency Response— Hazardous Materials Technician
Regulatory Reference	29 C.F.R. 1910.120(q)(6)(iii) See also Section 120(e)—General Training.
Who Must Be Trained	Individual who responds to hazardous material releases or potential releases for the purpose of stopping the release.
Frequency of Training	Not specified in regulations, but recommended initially. Annual refresher training required. At least 24 hours of training equal to the first responder operation level.
Content Overview	Employees must have "competency" in the following areas: 1. Requirements for First Responder (both awareness and operations level); 2. Implementation of emergency plans; 3. Classification, identification, and verification of hazardous material using field survey equipment; 4. Functioning within an assigned role in the Incident Command System; 5. Hazard and risk assessment techniques; 6. Advanced control, containment, or confined operations (within capacities of resources and the personal protective equipment available in-unit); 7. Decontamination procedures; 8. Termination procedures; 9. Basic chemistry and toxicology terminology and behavior; and 10. Selection and use of proper specialized chemical personal protective equipment provided to hazardous material technicians.
Suggested Training Objectives	Upon completion of training, employees will understand 1. The requirements for First Responder (both awareness and operations levels); 2. Implementation of emergency plans; 3. Classification, identification, and verification of hazardous material using field survey instruments and equipment; 4. Their role in the Incident Command System; 5. Intermediate hazard and risk assessment techniques; 6. Advanced control, containment, or confinement operations; 7. Intermediate decontamination procedures; 8. Advanced termination procedures; and 9. Basic chemistry and toxicology terminology and behavior.
Incorporated by Reference	See Incorporated by Reference—General Training, Section 120(e).
Other Regulations with Similar Training/Information Provisions	See Other Regulations with Similar Training/Information Provisions—General Training, Section 120(e).
Other Resources	See Other Resources—General Training, Section 120(e).

Subject	Hazardous Waste Operations and Emergency Response— Hazardous Material Specialist
Regulatory Reference	29 C.F.R. 1910.120(q)(6)(iv) See also Section 120(e)—General Training
Who Must Be Trained	Individuals who respond with and provide support to the Hazardous Material Technicians. Duties require more in-depth knowledge of specific hazardous material that they must contain and control.
Frequency of Training	Upon initial assignment and annually thereafter. The time required for training is 24 hours as specified in 29 C.F.R. 1910.120 paragraph (q)(6)(iv).
Content Overview	In addition to 24 hours of training equal to the technician level, specialists must have competency in the following: 1. How to implement the local emergency response plan; 2. Understanding classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment; 3. The state emergency response plan; 4. Selection and use of proper specialized chemical personal protective equipment provided; 5. Performing specialized control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available; 6. Determining and implementing decontamination procedures; 7. Developing a site safety and control plan; and 8. Understanding chemical, radiological and toxicological terminology and behavior.
Suggested Training Objectives	Upon successful completion of training the employee will be instructed in the following: 1. Requirements for First Responder and Hazardous Material Technician; 2. Local Emergency Response Plans; 3. Classification, identification, and verification of materials using advanced survey instruments and equipment; 4. State Emergency Response Plans; 5. Comprehensive “Hazard” and “Risk” assessment techniques; 6. Specialized control, containment, and/or confinement operations; 7. The steps to the implementation of decontamination procedures; 8. On-Site Safety and Control Plans; and 9. Chemical, radiological, and toxicologic terminology and behavior.
Incorporated by Reference	See Incorporated by Reference—General Training, Section 120(e).
Other Regulations with Similar Training/Information Provisions	See Other Regulations with Similar Training/Information Provisions—General Training, Section 120(e).
Other Resources	See Other Resources—General Training, Section 120(e).

Subject	Hazardous Waste Operations and Emergency Response— On Scene Incident Commander
Regulatory Reference	29 C.F.R. 1910.120(q)(6)(v) See also Section 120(e)—General Training.
Who Must Be Trained	Individuals (called “Incident Commanders”) who will assume control of an incident scene beyond the "First Responder Awareness Level.”
Frequency of Training	Upon initial assignment and annually thereafter. The time required for training is 24 hours as specified in OSHA 29 C.F.R. 1910.120 paragraph (q)(6)(v).
Content Overview	In addition to 24 hours training equal to the first responder operations level, must have competency in the following: 1. The ability to implement the employer's incident command system; 2. The ability to implement the employer's emergency response plan; 3. Understanding the hazards and risks associated with employees working in chemical protective equipment; 4. Implementation of the local emergency response plan; 5. The state emergency response plan and Federal Regional Response Team; and 6. Understanding the importance of decontamination procedures.
Suggested Training Objectives	Upon successful completion of training employees will be instructed in the following: 1. The requirements and responsibilities for all levels of emergency response personnel; 2. Employer's Incident Command System, and Emergency Response Plan; 3. “Hazards” and “Risk” associated with employees working in chemical protective clothing; 4. The responsibilities of the Federal Regional Response Team; and 5. The importance of decontamination procedures.
Incorporated by Reference	See Incorporated by Reference—General Training, Section 120(e).
Other Regulations with Similar Training/Information Provisions	See Other Regulations with Similar Training/Information Provisions—General Training, Section 120(e).
Other Resources	See Other Resources—General Training, Section 120(e).

Subject	Medical Services and First Aid
Regulatory Reference	29 C.F.R. 1910.151
Who Must Be Trained	Any employee designated to render first aid (when a clinic, infirmary or hospital is not in near proximity to the work place).
Frequency of Training	Not specified in regulations, but upon initial assignment and at periodic intervals to maintain certification recommended. Time required for certification and recertification varies depending on certifying agency (e.g., Red Cross, etc.).
Content Overview	The regulations state only that in the absence of a hospital or infirmary close to the work-place, an employee shall be adequately trained to render first aid.
Suggested Training Objectives	Upon successful completion of training, employees will be trained in 1. Methods of injury evaluation; 2. Basic first aid techniques; 3. The procedure for reporting medical emergencies; and 4. Location and procedures for use of eye wash/safety showers.
Incorporated by Reference	None
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Plans & Fire Prevention Plans 29 C.F.R. 1910.120 Hazardous Waste Operations & Emergency Response 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.252 Welding, Cutting, and Brazing 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	Red Cross Training Guide

Subject	Fire Brigades
Regulatory Reference	29 C.F.R. 1910.156(c)
Who Must Be Trained	All employees who are on the fire brigade.
Frequency of Training	Before performing fire brigade emergency activities, and as frequently as necessary to perform duties. Annual training required at a minimum. If interior structural fire fighting is expected, quarterly training is required. Fire brigades leaders and training instructors require more comprehensive training and education.
Content Overview	Quality of the training to be similar to training conducted by fire training schools such as those listed in 156(c)(3). Members to be informed of special hazards such as: 1. Storage and use of flammable liquids and gases, 2. Toxic chemicals, 3. Radioactive sources, and 4. Water reactive substances to which they may be exposed.
Suggested Training Objectives	Upon successful completion of training, employees will understand 1. Use of fire control equipment at the location; 2. Techniques used to control fires and emergencies (e.g., spills, leaks, etc.); 3. The proper use of personal protective equipment for fire fighting (e.g., fire suits, respirators, SCBA, etc.); 4. The alarm and/or communications systems at the location; 5. Special hazards that may be encountered at the location (e.g., hazardous/toxic materials, radioactive sources, electrical, etc.); 6. Incident command procedures; and 7. Pre-plans.
Incorporated by Reference	29 C.F.R. 1910.157 Portable Fire Extinguishers 29 C.F.R. 1910.158 Standpipe and Hose Systems 29 C.F.R. 1910.160 Fixed Extinguisher System 29 C.F.R. 1910.161 Dry Chemical Fixed Extinguishing Systems 29 C.F.R. 1910.163 Water Spray and Foam Fixed Extinguishing Systems 29 C.F.R. 1910.164 Fire Detection Systems 29 C.F.R. 1910.165 Employee Alarm System
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.38 Employee Emergency Action Plans and Fire Prevention Plans 29 C.F.R. 1910.96 Ionizing Radiation 29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.146 Permit-required Confined Spaces 29 C.F.R. 1910.1200 Hazard Communication
Other Resources	API Recommended Practice 2001, *Fire Protection in Refineries*, Sixth Edition, July 1984 API Publication 2004, *Inspection for Fire Protection*, First Edition, January 1984 NFPA 600, Training and Equipment of Private Fire Brigades NRC 10 C.F.R. Part 20—Standards for Protection Against Radiation NFPA 1410, Fire Attack Training

Subject	Portable Fire Extinguishers Fixed Extinguishing Systems Fire Detection Systems
Regulatory Reference	29 C.F.R. 1910.155(c)(iv)(41) 29 C.F.R. 1910.157(g)(1), (2), (3), (4) (See specific requirements below.) 29 C.F.R. 1910.158(e)(2)(vi)* 29 C.F.R. 1910.160(b)(10)* 29 C.F.R. 1910.164(c)(4)*
Who Must Be Trained	All employees in workplace where employer has provided portable fire extinguishers; employees designated to use fire fighting equipment as part of emergency action plan.
Frequency of Training	Initially and annually thereafter.
Content Overview	All employees receive educational program to familiarize with: 1. General principles of fire extinguisher us; 2. Hazards involved with incipient stage fire fighting; 3. Operation of equipment, including respiratory protection equipment, that is expected to be used; and 4. Performance of assigned duties. Designated employees must receive training in the use of appropriate equipment.
Suggested Training Objectives	All employees must be familiar with: 1. Types of fires and what fire extinguishers should be used for each type; 2. Hazards of using fire extinguishers; 3. How to use the fire extinguisher; and 4. Selection and use of proper respiratory equipment. Designated employees must be trained in: 1. Types of fires and what fire extinguishers should be used for each type; 2. Effective use of fire extinguishers; 3. Hazards of using fire extinguishers; 4. Selection and use of proper respiratory equipment; and 5. Their assigned duties.
Incorporated by Reference	29 C.F.R. 1910.155 Scope and Application 29 C.F.R. 1910.156 Fire Brigades 29 C.F.R. 1910.161 Dry Chemical Fixed Extinguishing Systems 29 C.F.R. 1910.162 Gaseous Agent Fixed Extinguishing Systems 29 C.F.R. 1910.163 Water Spray and Foam Fixed Extinguishing Systems 29 C.F.R. 1910.164 Fire Detection Systems 29 C.F.R. 1910.165 Employee Alarm Systems
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.119 Process Safety Management 29 C.F.R. 1910.38/.165 Employee Emergency and Fire Prevention Plans, & Alarm Systems

Other Resources	API Recommended Practice 2001, *Fire Protection in Refineries*, Sixth Edition, July 1984 API Publication 2004, *Inspection for Fire Protection*, First Edition, January 1984 NFPA 600, Training and Equipment of Private Fire Brigades NFPA 74, Fire Alarm Systems

*Footnote: Miscellaneous Fire Extinguishing/Detection Training Provisions:
1) 29 C.F.R. 1910.158(e)(2)(vi): "Trained" persons must be designated to conduct inspections under this section.
2) 29 C.F.R. 1910.160(b)(10): Employer must train employees designated to inspect, maintain, operate or repair fixed extinguishing systems. Annual review of training required.
3) 29 C.F.R. 164(c)(4): Service, maintenance and testing of fire detection systems must be performed by a "trained" person knowledgeable in the system.

Subject	Oil Spill Response—Facility
Regulatory Reference	40 C.F.R. 112.21
Who Must Be Trained	Those personnel involved in oil spill response activities
Frequency of Training	Not specified in the regulations
Content Overview	1. The owner or operator shall be responsible for the proper instruction of facility personnel in the procedures to respond to discharges of oil and in applicable oil spill response laws, rules, and regulations. 2. Training shall be functional in nature according to job tasks for both supervisory and non-supervisory operational personnel. 3. Trainers shall develop specific lesson plans on subject areas relevant to facility personnel involved in oil spill response and cleanup. 4. The facility owner or operator shall develop a program of facility response drills/exercises, including evaluation procedures. A program that follows the National Preparedness for Response Exercise Program (PREP) will be deemed satisfactory for purposes of this section. An alternative program can also be acceptable subject to approval by the Regional Administrator.
Suggested Training Objectives	Sufficient training to respond to discharges of oil and instruction in applicable oil spill response laws, rules, and regulations according to their job function.
Incorporated by Reference	Recommended: USCG's Training Elements for Oil Spill Response and National Preparedness for Response Exercise Program (PREP).
Other Regulations with Similar Training/Information Provisions	29 C.F.R. 1910.120 Hazardous Waste Operations and Emergency Response 30 C.F.R. 250 Minerals Management Service Oil Spill Response 33 C.F.R. 154 Coast Guard Spill Response Training 40 C.F.R. 300 Special Teams 40 C.F.R. 300 Appendix E Oil Spill Response
Other Resources	*Training Reference for Oil Spill Response*, U.S. Coast Guard National Preparedness for Response Exercise Program (PREP) Guidelines, U.S. Coast Guard

Subject	Spill Prevention Control and Countermeasure (SPCC) Plans
Regulatory Reference	40 C.F.R. 112.7(e)(10)
Who Must Be Trained	All personnel—not defined in regulations.
Frequency of Training	At intervals frequent enough to assure adequate understanding, or as stated in the approved SPCC plan.
Time Required	Not specified
Content Overview	1. All personnel must be instructed in the operation and maintenance of equipment to prevent discharge of oil, and applicable pollution control laws and regulations. 2. Spill prevention briefings must be held for operating personnel. Briefings should highlight: a. Known spill events or failures, b. Malfunctioning components, and c. Recently developed precautionary measures.
Suggested Training Objectives	After training, the trainee will understand: 1. How to operate and maintain equipment in a manner that prevents discharge of oil and hazardous substances; and 2. Applicable pollution control laws and regulations.
Incorporated by Reference	40 C.F.R. 109
Other Regulations with Similar Training/Information Provisions	EPA 40 C.F.R. 110 Discharge of Oil
Other Resources	29 C.F.R. 1910.106 Flammable and Combustible Liquids 29 C.F.R. 1910.120 Hazardous Waste Operations & Emergency Response 29 C.F.R. 1910.134 Respiratory Protection 29 C.F.R. 1910.1200 Hazard Communication API Bulletin D16, *Suggested Procedure for Development of Spill Prevention Control and Countermeasure Plans, (To Assist Conformance to Requirements of Title 40, Code of Federal Regulations, Part 112)*, Second Edition, August 1989

Subject	Emergency Plans for Gas Pipelines
Regulatory Reference	49 C.F.R. 192.615
Who Must Be Trained	Personnel who operate gas pipelines. Also the public, customers, persons engaged in excavations and appropriate government organizations must be informed on a continuing basis to ensure their ability to recognize a gas pipeline emergency.
Frequency of Training	Prior to initial assignment of operating a gas pipeline. Public awareness training must be done on a continuing basis.
Content Overview	Training covers the following elements: 1. Training to ensure they are knowledgeable of the emergency plans and emergency procedures spelled out in the plans; 2. The above training must include training on all phases of the emergency plan written procedures. These include (a) receiving, identifying, and classifying notices of events requiring immediate response, (b) establishing and maintaining communication with fire, police, etc., (c) prompt response to each type of emergency, (d) the availability of personnel, tools, equipment, and materials needed at an emergency site, (e) actions necessary to protect persons and then property. (f) Emergency shutdown & pressure reduction necessary to minimize hazards to life or property. (g) Making safe any actual or potential hazard to life or property, (h) notifying fire, police and other public officials of gas pipeline emergencies and coordinating planned responses, (i) safely restoring any service outage, and (j) beginning action under §192.617, (investigation of failures), if applicable as soon after the end of the emergency as possible; 3. Supervisors must be furnished copies of the latest edition of the emergency plans; and 4. The training of personnel must be verified to ensure that the training is effective. The public education program that is mandated in §192.615 must accomplish the following: 1. Enable customers, the public, appropriate government agencies and persons engaged in excavations to recognize a gas pipeline emergency; and 2. The program and media must be in English and other languages commonly understood by a significant number of non-English speaking people living in the operators area. Operators must establish and maintain liaison with public emergency response agencies. They must (a) learn the responsibilities and resources of each government agency, (b) acquaint the officials with the operator's ability in responding to a gas pipeline emergency, (c) identify the types of gas pipeline emergencies of which an operator notifies the officials, and (d) plan how the operator and officials can engage in mutual assistance to minimize hazards to life and property.
Suggested Training Objectives	Upon successful completion of training, employees will understand 1. The emergency plans and how to use them as a reference; 2. The call out procedures including who to call, and what steps to take to minimize damage or hazard to life or property by shutting down and depressurizing the pipeline; and 3. What must be done under §192.617 to help in investigating pipeline failures.
Incorporated by Reference	§49 C.F.R. 192.617 Investigation of Failures

Other Regulations with Similar Training/Information Provisions	None
Other Resources	API Recommended Practice 1122, *Emergency Preparedness and Response for Hazardous Liquids Pipeline*, First Edition, February 1991 API Recommended Practice 1123, *Development of Public Education Programs by Hazardous Liquid Pipeline Operators*, First Edition, September 1991 API Recommended Practice 750, *Management of Process Hazards*, First Edition, January 1990 OSHA Publication 3132, *Process Safety Management*, 1992 OSHA Publication 3133, *Process Safety Management Guidelines for Compliance*, 1992 NFPA 74, *Fire Alarm Systems* NFPA 101, *Exit Access* NFPA 121, *Emergency Egress*

Subject	Training—Operation, Maintenance, and Emergency Response for Transportation of Hazardous Liquid Pipeline
Regulatory Reference	49 C.F.R. 195.403
Who Must Be Trained	Personnel who operate and maintain liquid pipelines, and those who are emergency responders.
Frequency of Training	Establish and conduct a continuing training program. Refresher training in the form of reviewing performance in meeting objectives of the training program is required at intervals not to exceed 15 months.
Content Overview	Training covers the following elements: 1. Training to ensure they are knowledgeable of the operational, maintenance and emergency procedures spelled out in the procedural manual required by §195.402 that relate to their assignments; 2. (a) Knowledge of the characteristics, and hazards of the hazardous liquids transported, flammability, etc. (b) Recognizing conditions that are likely to cause emergencies, predict consequences of facility malfunctions or failures and spills. (c) Corrective action to take necessary to control any accidental release of hazardous liquid to minimize the potential for fire, explosion, toxicity or environmental damage. (d) Learn the proper use of fire-fighting procedures and equipment, fire suits, and breathing apparatus. This would preferably be done simulating a pipeline emergency; 3. In the case of maintenance personnel, they must be taught how to safely repair facilities using appropriate special precautions, such as isolation and purging, when highly volatile liquids are involved; 4. The performance of personnel must be reviewed at least each calendar year at intervals not to exceed every 15 months. This will involve all items in procedural manual. If any discrepancies are evident, appropriate changes must be made to the training program to ensure that it is effective; and 5. Operators must ensure that their supervisors maintain a thorough knowledge of that portion of the procedures established under §195.402 that they are responsible for.
Suggested Training Objectives	Upon successful completion of training, employees will know 1. The O&M manual and how to use it as a reference; 2. The call out procedures including who to call, and what steps to take to minimize damage or hazard to life or property by shutting down the pipeline; 3. The inspection reports to be documented and kept on file; 4. Which maps and records must be maintained and where; and 5. The maximum operating pressures of pipelines and how these are arrived at. The last three items will apply to those personnel responsible for them.
Incorporated by Reference	49 C.F.R. 195.402 Procedure Manual for Operations, Maintenance, and Emergencies
Other Regulations with Similar Training/Information Provisions	49 C.F.R. 195.402 Procedure Manual for Operations, Maintenance, and Emergencies

Other Resources

API Recommended Practice 750, *Management of Process Hazards*, First Edition, January 1990

API Recommended Practice 1118, *Training and Qualification of Liquid Pipeline Controllers*, First Edition, January 1991

API Recommended Practice 1119, *Training and Qualification of Liquid Pipeline Operators*, First Edition, November 1991

API Recommended Practice 1120, *Training and Qualification of Liquid Pipeline Maintenance Personnel*, First Edition, April 1992

API Recommended Practice 1122, *Emergency Preparedness and Response for Hazardous Liquids Pipeline*, First Edition, February 1991

API Recommended Practice 1123, *Development of Public Education Programs by Hazardous Liquid Pipeline Operators*, First Edition, September 1991

OSHA Publication 3132, *Process Safety Management*, 1992

OSHA Publication 3133, *Process Safety Management Guidelines for Compliance*, 1992

Subject	LPG and Other Gas Transportation by Pipeline
Regulatory Reference	49 C.F.R. 192.11, 192.515, 192.603
Who Must Be Trained	All employees involved in handling LP gas.
Frequency of Training	None specified in the regulation.
Content Overview	Proper training in handling and operating procedures per National Fire Protection Association (NFPA) Standard Numbers 58 and 59.
Suggested Training Objectives	See above.
Incorporated by Reference	NFPA Standard Numbers 58 and 59
Other Regulations with Similar Training/Information Provisions	49 C.F.R. 192.243 and 195.234 Nondestructive Testing of Gas and Hazardous Liquid Pipeline Welds 49 C.F.R.192.453 Requirements for Corrosion Control (gas pipelines) 49 C.F.R.199.239 DOT Alcohol Misuse Prevention Program: Pipeline Facilities
Other Resources	Company policies and procedures

SECTION IV—APPENDIXES

APPENDIX A—AMERICAN PETROLEUM INSTITUTE COMMITTEE ON TRAINING AND DEVELOPMENT

The Central Committee on Training and Development is one of ten standing committees supporting the API General Committee of Refining. The committee promotes the development and use of effective training techniques in the refining, petrochemical, and gas-processing industries. Its goals are to improve plant operations and maintenance, reduce occupational injuries and illnesses, reduce the incidence of fires, maintain effective environmental controls, and improve plant security. The members of the Central Committee on Training and Development either manage or direct the training of refinery and/or petrochemical plant workers or are themselves line managers who train those workers. The work of the committee focuses on the training of hourly and craft workers.

The Central Committee on Training and Development has also developed the API PILOT Series. This series is an effective method either for training plant operators in basic operator and maintenance skills or for improving their skills. It contains more than 200 hours of training in such areas as stationary equipment, fire fighting, and process operations. When the Central Committee identifies a need for a new training course, creation of the individual training modules is assigned to a district committee that, in cooperation with a professional training company, works with industry specialists to develop a valid, real-world training package. After completion, the new training course is validated at a selected refinery, petrochemical, or gas-processing plant to ensure its effectiveness.

For more information pertaining to the central or district committee activities, please contact the secretary of the Central Committee on Training and Development, American Petroleum Institute, 1220 L Street, Northwest, Washington, DC 20005.

APPENDIX B—GENERIC OUTLINE OF TRAINING MATRIX

DEPARTMENTS / COURSES	ADMINISTRATION: CLERICAL	SUPPORT GROUP	HUMAN RESOURCES	PURCHASING	ACCOUNTING	ENGINEERING: ENGINEERS	FIELD COORDINATORS	DRAFT PERSONS	SECRETARIES	TECHNICAL SERVICES: TECH SERVICES	ENGINEERS	COMPUTER ENGINEERS	ENVIRONMENTAL ENGINEERS	SECRETARIES	OPERATIONS: MANAGERS	SUPERVISORS	HOURLY OPERATORS	PRODUCT CONTROL: MANAGERS	SUPERVISORS	HOURLY OPERATORS	BUYERS / SCHEDULERS	LABORATORY: SUPERVISORS	CHEMISTS	LAB TECHNICIANS	SECRETARIES	MAINTENANCE: SUPERVISORS	ENGINEERS / INSPECTORS	CRAFT TECHNICIANS	WAREHOUSE PERSONNEL
NEW EMPLOYEE ORIENTATION																													
HEARING CONSERVATION																													
HAZARD COMMUNICATION																													
DETECTIVE INSTRUMENTS																													
24-HOUR FREE TRAINING																													
RESPIRATORY PROTECTION																													
BENZENE																													
INDUSTRIAL HYGIENE																													
CONTRACTOR ORIENTATION																													
CONTRACTOR SAFETY VIDEO																													
EMERGENCY PROCEDURES																													
ONE-HOUR FIRE TRAINING																													
HAZWOPER AWARENESS																													
HAZWOPER OPERATIONAL																													
HAZWOPER TECHNICIAN																													
OFFICE SAFETY																													
FIRE EXTINGUISHERS																													
RCRA–RESOURCE CONSERVATION AND RECOVERY ACT																													
FORK-LIFT OPERATIONS																													
RIGGING SAFETY																													
ELECTRICAL SAFETY																													
CRANE OPERATIONS																													
FIRE BRAGADES EMERGENCY EQUIPMENT																													
MEDICAL & FIRST AID																													
ACCESS TO MEDICAL & HEALTH RECORDS																													
LOCKOUT / TAGOUT PROCEDURES																													
MACHINERY SAFETY OPERATIONS																													
EYE PROTECTION																													

APPENDIX C—TERMINOLOGY

The following is a glossary of training-related terms that frequently appear in the regulations and modules. The definitions have been extracted from the regulations and may help in their interpretation. The definitions are intended as guidance only and should not be considered the primary source for compliance with the regulations in this document. It is the Institute's goal to keep this glossary as up-to-date as practicable, but users are encouraged to contact their own internal regulatory compliance organizations to keep abreast of regulations that may go into effect after the date printed on the cover of this document.

Authorized or Designated Employee

An employee selected or assigned by the employer or the employer's representative as an employee qualified to perform specific duties.

Certification

Written (hard-copy) or electronic records documenting that an employee has demonstrated proficiency at job-required tasks, including knowledge of federally mandated subjects pertaining to the employee's job.

Certified, Competent or Qualified Employee

An employee who, by virtue of formal and/or informal training in or out of the workplace, can demonstrate proficiency at job-required tasks.

Documentation

Written (hard-copy) or electronic records that describe training session attendance, test results, task checklists, lesson plans, course content, and the like and that may be used as evidence that training has occurred. Documentation should be retrievable by employee identification. Records should be kept in accordance with company policies or as required by regulation (benzene regulation requires records be kept for 30 years after employment).

Exposed or Affected Employee

Any employee who in the course of employment is subject to

- hazardous chemicals through inhalation, ingestion, skin contact or absorption.
- hazardous energy sources through potential (accidental or possible) exposure to uncontrolled release of energy.
- changing physical conditions of the work environment: walkways, surfaces, platforms, excavations, confined spaces, and the like.

Refresher Training

Reinforcement of previously acquired skills and knowledge, either by formal (classroom) or informal (on-the-job) means.

SECTION V—INDEXES

INDEX A—LIST OF MODULES ALPHABETICALLY INDEXED BY SUBJECT

Environmental Protection Agency (40 C.F.R.)

Department of Transportation (49 C.F.R.)

Nuclear Regulatory Commission (10 C.F.R.)

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INDEX B—LIST OF MODULES NUMERICALLY INDEXED BY REGULATION

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