OSHA Construction Industry Standards
Requiring Programs, Inspections, Procedures
Records and/or Training

Occupational Safety and Health Division
N.C. Department of Labor
1101 Mail Service Center
Raleigh, NC 27699-1101

Cherie Berry
Commissioner of Labor
This guide is in a series of industry guides focused on standards requiring programs, inspections, procedures, records and/or training. It is intended to be consistent with all existing OSHA standards; therefore, if an area is considered by the reader to be inconsistent with a standard, then the OSHA standard should be followed.

To obtain additional copies of this guide, or if you have questions about North Carolina occupational safety and health standards or rules, please contact:

N.C. Department of Labor
Education, Training and Technical Assistance Bureau
1101 Mail Service Center
Raleigh, NC 27699-1101
Phone: 919-807-2875 or 1-800-625-2267

Additional sources of information are listed on the inside back cover of this guide.
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Foreword

In North Carolina, the N.C. Department of Labor enforces the federal Occupational Safety and Health Act through a state plan approved by the U.S. Department of Labor. NCDOL offers many educational programs to the public and produces publications to help inform people about their rights and responsibilities regarding occupational safety and health.

When reading this guide, please remember the mission of the N.C. Department of Labor is greater than just regulatory enforcement. An equally important goal is to help citizens find ways to create safe workplaces. Everyone profits when managers and employees work together for safety. This guide, like the other educational materials produced by the N.C. Department of Labor, can help.

Cherie Berry
Commissioner of Labor

Overview

This industry guide is designed to assist employers in the construction industry in complying with standards that have special requirements such as written programs, inspections, competent persons, training and recordkeeping requirements that are applicable to construction. We encourage you to use the information provided in this industry guide as necessary to accomplish this goal. You may also copy any of the material in this guide to be used in your safety and health efforts.

The information in this guide is provided voluntarily by the N.C. Department of Labor’s Education, Training and Technical Assistance Bureau as a public service and is made available in good faith. It is provided as a compliance aid and does not constitute a legal interpretation of OSHA standards, nor does it replace the need to be familiar with and follow the OSHA standards (including any North Carolina-specific changes.)

While all attempts have been made to ensure the accuracy of the content and completeness in the information provided, it may not include all the standards that require programs, training, procedures, inspections and records that may be required by an OSHA standard. To ensure completeness in required documentation and records, the specific standard should be referenced for specific requirements.

The NCDOL Occupational Safety and Health Division’s Consultative Services Bureau can be contacted for assistance in helping you set up your individual safety and health management program and with on-site surveys. Feel free to contact them at 1-800-NC-LABOR (1-800-625-2267) or 919-807-2899. You may also want to visit their website at http://www.nclabor.com/osha/consult/consult.htm.

For training events, publications, PowerPoint presentations and standard interpretations, please contact the Education, Training and Technical Assistance Bureau at 919-807-2875 or access the ETTA website at http://www.nclabor.com/osha/etta/etta.htm.
How to Use This Industry Guide

This guide was developed to help employers comply with standards that have special requirements such as:

- Programs
- Policies
- Procedures
- Plans
- Inspections
- Tests
- Recordkeeping
- Certifications
- Training
- Exposure monitoring
- Medical surveillance
- Competent person
- Qualified person
- Instructions
- Signs
- Markings
- Tags
- Regulated areas
- Designs
- Professional registered engineer

The first section contains tables that provide a quick overview of the special requirements by standard; including North Carolina state-specific standards. The key for the tables are below.

**P: Programs, policies and procedures-related requirement:** Indicates required programs or policies, which can be written or unwritten, and/or be a mix of procedures (e.g., work practices, controls), policies or plans required to meet a rule’s requirements.

**I: Inspections and tests requirement:** Indicates required inspections, workplace evaluations, hazard assessments, visual examinations tests, and/or surveys, documented and undocumented.

**RK: Recordkeeping requirement:** Indicates rules that have recordkeeping requirements for activities such as injury reporting, equipment inspections, surveys, tests, medical monitoring, exposure monitoring, training, records and other documentation requirements. (Other than signs, markings, tags and labels)

**C: Certification requirement:** Indicates rules that have a certification component. Certification will usually mean a written, signed, and dated statement confirming the performance of a requirement—also called a “certification record” in many rules.

**T: Training and Communications requirement:** Indicates rules that have requirements for employee training, instruction, communications and/or providing information.

**EM: Exposure monitoring requirement:** Indicates rules that require exposure monitoring or other monitoring components for workplace hazards such as noise, chemicals and air contaminants.

**MS: Medical surveillance requirement:** Indicates rules that require regular medical examinations and consultations for employees who may be overexposed to hazardous substances during their work and/or a medical or a physically qualified component.

**CP: Competent person requirement:** Indicates rules that have requirements for “competent persons.” An OSHA “competent person” is defined as “one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.”

**QP: Qualified person requirement:** Indicates rules that have requirements for “qualified persons.” “Qualified” means one who, by possession of a recognized degree, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his or her ability to solve or resolve problems
relating to the subject matter, the work, or the project. This will include registered professional engineers, physicians, audiologists, industrial hygienists and other qualified persons.

**SMT: Signs, markings, tags requirement:** Indicates rules that have requirements for some type of labeling component for equipment, machines and tools or signs for regulated areas, or requirement for establishing a regulated area, a posting requirement or placarding.

**O: Other requirements:** Indicates rules that have special requirements other than those listed above.

Section 2 contains state-specific standards, Section 3 contains recordkeeping standards, and Section 4 contains construction industry standards. These sections are broken out by subpart and sections within the subpart that have special requirements. Each section will contain a “Scope/Application” that explains the scope or application of the standard (who is covered). This will help the user identify whether the standard applies to them. If there is an “Exception” to the scope, that will also be provided following the “Scope/Application.”

Following the “Scope/Application” (or “Exception”) will be a list of the “Standard Highlights” that is the special requirements found in the standard. Following the “Standard Highlights,” each special requirement will be broken into sections containing individual rules that have that special requirement. Key words within each rule are italicized for quick review while written and/or implied documentation requirements are italicized and bolded.

*Please note: If a standard is not referenced in this guide, a special requirement was not found for that particular rule.*
### SECTION 1

13 NORTH CAROLINA ADMINISTRATIVE CODE

CHAPTER 7—OFFICE OF OCCUPATIONAL SAFETY AND HEALTH

SUBCHAPTER 7A—GENERAL RULES AND OPERATIONAL PROCEDURES

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13 NORTH CAROLINA ADMINISTRATIVE CODE

CHAPTER 7—OFFICE OF OCCUPATIONAL SAFETY AND HEALTH

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#### SUBPART E—PERSONAL PROTECTIVE EQUIPMENT AND LIFE SAVING EQUIPMENT

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#### SUBPART F—FIRE PROTECTION AND PREVENTION

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#### SUBPART G—SIGNS, SIGNALS, AND BARRICADES

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#### SUBPART H—MATERIALS HANDLING, STORAGE, USE, AND DISPOSAL

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### SUBPART J—WELDING AND CUTTING

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#### SUBPART N—HELICOPTERS, HOISTS, ELEVATORS, AND CONVEYORS

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#### SUBPART O—MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS

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#### SUBPART Q—CONCRETE AND MASONRY CONSTRUCTION

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#### SUBPART R—STEEL ERECTION

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#### SUBPART S—UNDERGROUND CONSTRUCTION, CAISSONS, COFFERDAMS, AND COMPRESSED AIR

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#### SUBPART U—BLASTING AND THE USE OF EXPLOSIVES

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### 29 CFR PART 1926—CONSTRUCTION

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**SUBPART W—ROLLOVER PROTECTIVE STRUCTURES; OVERHEAD PROTECTION**

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**SUBPART X—LADDERS**

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**SUBPART Y—COMMERCIAL DIVING OPERATIONS**

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#### SUBPART Z—TOXIC AND HAZARDOUS SUBSTANCES

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SECTION 2
13 NCAC Chapter 7—Office of Occupational Safety and Health
Subchapter 7A—General Rules and Operational Procedures

7A .0600—SAFETY AND HEALTH PROGRAMS AND COMMITTEES

Scope/Application: This section sets forth rules of procedure for implementation of N.C. General Statutes 95, Article 22, which is titled “Safety and Health Programs and Committees.”

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—training, audits, accident investigations, plans, inspections, communications, applicable programs, committees
• Inspections and Tests—quarterly inspections
• Recordkeeping—reporting requirements
• Training and Communications—on or off-site, knowledgeable trainer, applicable standards

Programs, Policies and Procedures

7A.0601(b)—Purpose and Scope—The purpose of this Section is to establish programs which will promote safety and health for all North Carolina employers with a workers’ compensation experience rate modifier of 1.5 or above. Employee Safety and Health Committees will be established by all North Carolina employers having 11 or more employees and an experience rate modifier of 1.5 or above. (Reference Section 07A.0603(b) for Minimum Elements of the Safety and Health Programs and N.C. Gen. Stat. § 95-251(b)(1)-(9) for specific requirements.)

7A.0603 Safety and Health Programs—(b) The written program shall also include:

(4) The manner in which workplace accidents will be investigated and corrective action implemented. The employer shall keep a comprehensive record of accident investigations, findings, and corresponding corrective action taken.

(5) The manner in which near-miss incidents will be investigated. Special emphasis will be placed on identifying all contributing factors to any near-miss incident. The employer shall keep a comprehensive record of each such incident and the findings relating to it, and shall keep a record of all corresponding corrective action taken.

(6) The methods used to identify, analyze and control new or existing hazards, conditions and operations, and the manner in which changes will be incorporated into the safety program, safety committee checklist, and communicated to all affected employees.

(7) Written compliance plans as required by either the Mine Safety laws or OSHA standards, whichever is applicable to the employer. Written compliance plans shall include, the following OSHA standards, when applicable: Excavations, Hazard Communication, Occupational Noise Exposure, Control of Hazardous Energy Sources (Lockout/Tagout), Respiratory Protection, Process Safety Management of Highly Hazardous Chemicals, Bloodborne Pathogens, Life Safety Code, Cotton Dust, and Confined Spaces.

(8) A written checklist of all potential hazards to be inspected during the quarterly inspections required pursuant to G.S. 95-252(c)(4)d, if applicable, including, but not limited to, checking for properly marked doors (including exit doors and doors not leading to an exit); properly working fire extinguishers; unlistered hazardous substances, improperly located hazardous substances, or hazardous substances for which there are no material safety data sheets; doorways or exit pathways that are cluttered; improperly grounded equipment and exposed live wiring and parts; and unguarded machinery. Each item on the aforementioned written checklist shall be checked during the quarterly inspections and a copy of the list shall be retained by the employer for not less than two years. All conditions or items deemed to be out of compliance shall be immediately abated, unless circumstances beyond the control of the employer requires a longer period of time.
(9) The employer shall conduct an annual self-audit of all required safety and health programs. Written findings and a statement of remedial actions taken shall be retained for not less than two years. Companies with less than 11 employees that are not required to have safety and health committees shall appoint a company safety officer to conduct the annual self-audit.

7A.0606 Training and Education—(b) There shall also be established for employees whether or not a safety and health committee is required:

(1) A system for training and education of all employees in occupational safety and health hazards at the worksite. The system shall contain specific requirements that new employees not be allowed to begin work, except when participating in carefully supervised on-the-job training, until thoroughly trained in the safe use of all applicable equipment and substances, and procedures relating to their workplace environment.

(2) A system of training and education for any existing employee given a new work assignment.

(3) A system of training and education for all affected employees when a new substance, process, procedure or piece of equipment is introduced into the workplace and presents a new hazard to safety or health.

(4) A system of training and education for all affected employees when any new personal protective equipment or different work practice is used on existing hazards.

7A.0604—Selection of Safety Committees—(a) An employer may elect to implement any one of the selection processes [found in 13 NCAC 07A.0604] as a means of meeting the requirements for selection of representatives to employee Safety and Health committees pursuant to G.S. 95-252(d). The employer shall retain written documentation outlining any utilized selection process. An employer whose employees are represented by a collective bargaining representative must utilize either subsection 8, 9, or 10 for committee selection purposes. Any non-management employees who choose not to participate in the collective bargaining process are still considered to be represented by the collective bargaining representative for purposes of this Rule for committee selection purposes. (Reference Section 07A.0604 [Selection of Safety Committees], Section 07A.0605[Safety and Health Committee Requirements], and N.C. General Statute. § 95-252(d) [Safety and Health Committees for specific requirements].)

7A.0605—Safety & Health Committee Requirements—(b) Multi-Employer Worksites:

(2) The general contractor or equivalent shall designate a representative to attend the Safety and Health Committee meetings of the notifying employer(s).

(3) The notifying employer shall work with the general contractor or equivalent to distribute information as required by G.S. 95-251(b)(9).

Inspections and Tests

13 NCAC 07A.0603 Safety and Health Programs—(b) The written program shall also include:

(8) A written checklist of all potential hazards to be inspected during the quarterly inspections required pursuant to G.S. 95-252(c)(4)d, if applicable, including, but not limited to, checking for properly marked doors (including exit doors and doors not leading to an exit); properly working fire extinguishers; unlisted hazardous substances, improperly located hazardous substances, or hazardous substances for which there are no safety data sheets; doorways or exit pathways that are cluttered; improperly grounded equipment and exposed live wiring and parts; and unguarded machinery. Each item on the aforementioned written checklist shall be checked during the quarterly inspections and a copy of the list shall be retained by the employer for not less than two years. All conditions or items deemed to be out of compliance shall be immediately abated, unless circumstances beyond the control of the employer requires a longer period of time.
(9) The employer shall conduct an annual self-audit of all required safety and health programs. Written findings and a statement of remedial actions taken shall be retained for not less than two years. Companies with less than 11 employees that are not required to have safety and health committees shall appoint a company safety officer to conduct the annual self-audit.

Recordkeeping

7A.0603 Safety and Health Programs—(b) The written program shall also include:

(4) The manner in which workplace accidents will be investigated and corrective action implemented. The employer shall keep a comprehensive record of accident investigations, findings, and corresponding corrective action taken.

(5) The manner in which near-miss incidents will be investigated. Special emphasis will be placed on identifying all contributing factors to any near-miss incident. The employer shall keep a comprehensive record of each such incident and the findings relating to it, and shall keep a record of all corresponding corrective action taken.

(6) The methods used to identify, analyze and control new or existing hazards, conditions and operations, and the manner in which changes will be incorporated into the safety program, safety committee checklist, and communicated to all affected employees.

(7) Written compliance plans as required by either the Mine Safety laws or OSHA standards, whichever is applicable to the employer. Written compliance plans shall include, the following OSHA standards, when applicable: Excavations, Hazard Communication, Occupational Noise Exposure, Control of Hazardous Energy Sources (Lockout/Tagout), Respiratory Protection, Process Safety Management of Highly Hazardous Chemicals, Bloodborne Pathogens, Life Safety Code, Cotton Dust, and Confined Spaces.

(8) A written checklist of all potential hazards to be inspected during the quarterly inspections required pursuant to G.S. 95-252(c)(4)d, if applicable, including, but not limited to, checking for properly marked doors (including exit doors and doors not leading to an exit); properly working fire extinguishers; unlisted hazardous substances, improperly located hazardous substances, or hazardous substances for which there are no material safety data sheets; doorways or exit pathways that are cluttered; improperly grounded equipment and exposed live wiring and parts; and unguarded machinery. Each item on the aforementioned written checklist shall be checked during the quarterly inspections and a copy of the list shall be retained by the employer for not less than two years. All conditions or items deemed to be out of compliance shall be immediately abated, unless circumstances beyond the control of the employer requires a longer period of time.

(9) The employer shall conduct an annual self-audit of all required safety and health programs. Written findings and a statement of remedial actions taken shall be retained for not less than two years. Companies with less than 11 employees that are not required to have safety and health committees shall appoint a company safety officer to conduct the annual self-audit.

7A.0604—Selection of Safety Committees—(a) An employer may elect to implement any one of the selection processes [found in 13 NCAC 07A.0604] as a means of meeting the requirements for selection of representatives to employee Safety and Health committees pursuant to G.S. 95-252(d). The employer shall retain written documentation outlining any utilized selection process. An employer whose employees are represented by a collective bargaining representative must utilize either subsection 8, 9, or 10 for committee selection purposes. Any non-management employees who choose not to participate in the collective bargaining process are still considered to be represented by the collective bargaining representative for purposes of this Rule for committee selection purposes.

Note to Section 07A.0604: Reference Section 07A.0604 [Selection of Safety Committees], Section 07A.0605 [Safety and Health Committee Requirements], and N.C. General Statute. § 95-252(d) [Safety and Health Committees for specific requirements].
7A.0607—Reports—The report forms required from employers within 60 days of notification by the Commissioner of Labor of inclusion in the program shall include (Reference Section 07A.0605 for specific requirements).

7A.0607—Reports—(10) A timetable for delivery of training to employees and committee members. In no case shall the timetable for delivery of training exceed an additional 90 days beyond notification to the Commissioner of Labor of compliance with these Rules.

Training and Communications

7A.0603 Safety and Health Programs—(b) The written program shall also include:

(2) The manner in which the plan will be communicated to all affected employees so that they are informed of work-related hazards and controls.

(6) The methods used to identify, analyze and control new or existing hazards, conditions and operations, and the manner in which changes will be incorporated into the safety program, safety committee checklist, and communicated to all affected employees.

(11) The methods used to communicate requirements of the program to other employers or subcontractors and their employees who may be present at the same site.

7A.0606—Training and Education—(a) All safety and health committee members shall receive training and education based on the type of business activity in which the employer is involved and the scope of the committee’s duties. (Reference Section 7A.0606—Training and Education for specific training requirements.)

7A.0606 Training and Education—(b) There shall also be established for employees whether or not a safety and health committee is required:

(5) Training to comply with all applicable OSHA employee training requirements, including, but not limited within General Industry to Means of Egress; Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms; Occupational Health and Environmental Control; Hazardous Materials; Personal Protective Equipment; General Environmental Controls; Medical and First Aid; Fire Protection; Materials Handling and Storage; Machinery and Machine Guarding; Welding, Cutting and Brazing; Special Industries; Electrical; Commercial Diving Operations; Toxic and Hazardous Substances, and Occupational Exposure to Hazardous Chemicals in Laboratories; including, but not limited within the Construction Industry to General Safety and Health Provisions; Occupational Health and Environmental Controls; Personal Protective and Life Saving Equipment; Fire Protection and Prevention; Signs, Signals, and Barricades; Tools—Hand and Power; Welding and Cutting; Electrical; Ladders and Scaffolding; Cranes, Derricks, Hoists, Elevators and Conveyors; Motor Vehicles, Mechanized Equipment, and Marine Operations; Excavations; Concrete and Masonry Construction; Underground Construction, Caissons, Cofferdams and Compressed Air; Demolitions; Blasting and Use of Explosives; Power Transmission Distribution; Stairways and Ladders; including, but not limited within Agriculture to Roll-Over Protective Structures, and Safety for Agricultural Equipment; and including, but not limited to the Process Safety Management Standard, the Confined Spaces Standard, Hazard Communication Standard, and the Bloodborne Pathogens Standard.

7A.0606—Training and Education—(c) The required safety and health training shall be provided by someone trained to recognize, evaluate and control safety and health hazards. The training may be provided on-site or off-site.
**SECTION 7F .0200—CONSTRUCTION STANDARDS**

**Scope/Application:** The provisions for the Occupational Safety and Health Standards for Construction, Title 29 of the Code of Federal Regulations Part 1926 promulgated as of April 18, 2012, and exclusive of subsequent amendments, are incorporated by reference except as modified or amended in 13 NCAC 07F .0202 through .0207.

**STANDARD HIGHLIGHTS**
- Programs, Policies and Procedures—fall protection measures, bloodborne pathogens program

**Programs, Policies, and Procedures**

7F .0205—Steel Erection—Subpart R—Steel Erection—additions and amendments to 29 CFR 1926.750 Scope, through 1926.754 Structural steel assembly.

(b)(2) There may be activities that occur during and are part of steel erection where conventional fall protection methods may not offer adequate protection for employees. The employer has the burden of establishing and determining when to implement employee fall protection measures as described in 1926.760 or the more protective measures described in 1926.502 “Fall Protection Systems Criteria and Practices”. Where non-traditional steel or iron workers (employees not meeting requirements of 1926.761(c)) [Training] are engaged in leading edge work activities six (6) feet or more above lower levels, those employees shall be protected from falling by guardrail systems, personal fall arrest systems or safety nets. Such leading edge work activities include, but are not limited to off loading, stacking, laying out and fastening steel floor decking and metal and non-metal roof decking; positioning and securing exterior curtain walls, window walls, exterior siding systems; and moving from point to point while performing these activities.

7F .0207—Toxic and Hazardous Substances—Subpart Z—Toxic and Hazardous Substances—incorporation of the existing standard for Bloodborne Pathogens, 29 CFR 1910.1030, excluding subparagraph (e) HIV and HBV Research Laboratories and Production Facilities, into the Safety & Health Regulations for Construction at 29 CFR 1926.1130. Final rule as published in 56 FR (December 6, 1991) pages 64175–64182, including Appendix A—Hepatitis B Vaccine Declination (Mandatory)—with corrections as published in 57 FR (July 1, 1992) page 29206, and with the following revision to the definition of Occupational Exposure under subsection (b) Definitions: “Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of collateral first aid duties by an employee in the areas of construction, alteration, or repair, including painting and decorating.”

1910.1030—BLOODBORNE PATHOGENS

**Scope/Application:** This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.

**STANDARD HIGHLIGHTS**
- Programs, Policies and Procedures—work controls, exposure control program, gloving policy, written schedules, hepatitis B vaccinations
- Recordkeeping—retention requirements, sharps injury log
- Training and Communications—initial and annual training
- Exposure Monitoring—exposure control program, exposure determination
- Medical Surveillance—evaluations after exposure, information provided to the physician, written opinions
- Qualified Person—healthcare professional
- Signs, Markings and Tags—labels, posted signs
**Programs, Policies and Procedures**

**1910.1030(c)(1)(i)**—Each employer having an employee(s) with occupational exposure as defined by paragraph (b) [Definitions] of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure. [Reference paragraph (c)(1) for specific information.]

**1910.1030(c)(1)(iv)**—The Exposure Control Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure.

**1910.1030(d)(2)**—Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment shall also be used.

**1910.1030(d)(3)(ix)(D)**—If an employer in a volunteer blood donation center judges that routine gloving for all phlebotomies is not necessary then the employer shall:

**1910.1030(d)(3)(ix)(D)(1)**—Periodically reevaluate this policy.

**1910.1030(d)(3)(ix)(D)(2)**—General. Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer shall determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.

**1910.1030(f)(1)(i)**—The employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident.

**1910.1030(f)(2)(i)**—Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g)(2)(vii)(I) [Information and Training] and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons.

**1910.1030(f)(2)(iv)**—The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in appendix A [Hepatitis B Vaccine Declination].

**1910.1030(g)(2)(i)**—The employer shall train each employee with occupational exposure in accordance with the requirements of this section. Such training must be provided at no cost to the employee and during working hours. The employer shall institute a training program and ensure employee participation in the program. [Reference paragraph (h)(1) for specific information.]

**1910.1030(g)(2)(v)**—Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee’s occupational exposure. The additional training may be limited to addressing the new exposures created.

**Recordkeeping**

**1910.1030(c)(2)(i)**—Each employer who has an employee(s) with occupational exposure as defined by paragraph (b) [Definitions] of this section shall prepare an exposure determination.

**1910.1030(d)(4)(ii)**—General. Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer shall determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.
1910.1030(f)(4)(i)—The employer shall ensure that the healthcare professional responsible for the employee’s Hepatitis B vaccination is provided a copy of this regulation.

1910.1030(f)(6)—Medical Recordkeeping. Medical records required by this standard shall be maintained in accordance with paragraph (h)(1) [Medical Records] of this section.

1910.1030(h)(1)(i)—The employer shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1030(h)(1)(iv)—The employer shall maintain the records required by paragraph (h) [Medical Records] for at least the duration of employment plus 30 years in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1030(h)(4)—Transfer of Records. The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

1910.1030(h)(5)(i)—The employer shall establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

1910.1030(h)(5)(iii)—The sharps injury log shall be maintained for the period required by 29 CFR 1904.33 [Record-keeping—Retention and Updating].

Training and Communications

1910.1030(f)(4)(i)—The employer shall ensure that the healthcare professional responsible for the employee’s Hepatitis B vaccination is provided a copy of this regulation.

1910.1030(f)(4)(ii)—The employer shall ensure that the healthcare professional evaluating an employee after an exposure incident is provided information. [Reference paragraph (f)(4) for specific information.]

1910.1030(f)(5)—Healthcare Professional’s Written Opinion. The employer shall obtain and provide the employee with a copy of the evaluating healthcare professional’s written opinion within 15 days of the completion of the evaluation.

1910.1030(g)(2)(i)—The employer shall train each employee with occupational exposure in accordance with the requirements of this section. Such training must be provided at no cost to the employee and during working hours. The employer shall institute a training program and ensure employee participation in the program. [Reference paragraph (h)(1) for specific information.]

1910.1030(g)(2)(ii)(A)—At the time of initial assignment to tasks where occupational exposure may take place.

1910.1030(g)(2)(ii)(B)—At least annually thereafter.

1910.1030(g)(2)(v)—Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee’s occupational exposure. The additional training may be limited to addressing the new exposures created.

Exposure Monitoring

1910.1030(c)(1)(i)—Each employer having an employee(s) with occupational exposure as defined by paragraph (b) [Definitions] of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure. [Reference paragraph (c)(1) for specific information.]

1910.1030(c)(1)(iv)—The Exposure Control Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or re-
vised employee positions with occupational exposure.

1910.1030(c)(2)(i)—Each employer who has an employee(s) with occupational exposure as defined by paragraph (b) [Definitions] of this section shall prepare an exposure determination.

Medical Surveillance

1910.1030(f)(3)—Post-exposure Evaluation and Follow-up. Following a report of an exposure incident, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, and additional elements.

1910.1030(f)(4)(i)—The employer shall ensure that the healthcare professional responsible for the employee’s Hepatitis B vaccination is provided a copy of this regulation.

1910.1030(f)(4)(ii)—The employer shall ensure that the healthcare professional evaluating an employee after an exposure incident is provided information [Reference paragraph (f)(4) for specific information.]

1910.1030(f)(5)—Healthcare Professional’s Written Opinion. The employer shall obtain and provide the employee with a copy of the evaluating healthcare professional’s written opinion within 15 days of the completion of the evaluation.

Qualified Person

1910.1030(f)(4)(i)—The employer shall ensure that the healthcare professional responsible for the employee’s Hepatitis B vaccination is provided a copy of this regulation.

1910.1030(f)(4)(ii)—The employer shall ensure that the healthcare professional evaluating an employee after an exposure incident is provided information.

1910.1030(f)(5)—Healthcare Professional’s Written Opinion. The employer shall obtain and provide the employee with a copy of the evaluating healthcare professional’s written opinion within 15 days of the completion of the evaluation.

Signs, Markings and Tags

1910.1030(g)(1)(i)(A)—Warning labels shall be fixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to store, transport or ship blood or other potentially infectious materials, except as provided in paragraph (g)(1)(i)(E), (F) and (G) [Labels and Signs].

1910.1030(g)(1)(i)(e)—Red bags or red containers may be substituted for labels.

1910.1030(g)(1)(ii)(A)—The employer shall post signs at the entrance to work areas specified in paragraph (e), HIV and HBV Research Laboratory and Production Facilities.

SECTION 7F .0600—COMMUNICATION TOWER STANDARDS

Scope/Application: The rules in this Section contain requirements for policies, procedures, and safe work practices to protect employees throughout North Carolina from the hazards of working on communication towers during construction, alteration, repair, operation, inspection, and maintenance activities. A communication tower is defined as any tower over six feet in height that is used primarily as an antenna or to host one or more antennas. Where the communication tower is
affixed to another structure, such as an electrical transmission tower, church steeple, building rooftop, or water tower, the applicable part of any controlling regulation for protection of employees (e.g., 29 CFR 1910.268, 29 CFR 1910.269 and 29 CFR 1926 Subpart V for transmission towers) shall apply up to the point of access to the communication tower.

**Exception:** The rules in this Section shall not apply to communication towers that are mounted on motor vehicles.

### STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—emergency procedures, fall protection plan, training program
- Inspections and Tests—competent person, hazard assessment, visual inspections
- Recordkeeping—retention requirements
- Certification—first aid/CPR
- Training and Communications—initial and retraining, RF, first aid/CPR
- Competent Person—inspections
- Qualified Person—inspections, approvals
- Signs, Markings and Tags—signs, markings

### Programs, Policies and Procedures

#### 7F .0605—Fall Protection—(c) Fall Protection Systems.

In order to comply with the requirements of Subparagraph (a) (1) of this Rule, the employer may permit employees to utilize the 100% fall protection systems described in Paragraphs (d) through (g) [Fall Protection] of this Rule. If the fall protection systems described therein are not present on the tower, the employer shall not permit employees to climb the tower at heights above six feet unless:

1. The employer can demonstrate that the requirements for a fall protection plan under Paragraph (i) [Emergency and Rescue Procedures] of this Rule have been met.

#### 7F .0605—Fall Protection—(b) Fall Protection Plan.

This Paragraph applies when employees are working on a structure where no adequate tie-off anchorage point(s) exist, the fall protection systems described in Paragraph (c) [Fall Protection Systems] of this Rule are not feasible or create a greater hazard, and the work cannot be completed utilizing an alternative means of access to the work area such as an aerial lift or elevated work platform. If an employer demonstrates the foregoing conditions are present, then in addition to the criteria in 29 CFR 1926.502(k) [Fall Protection Systems Criteria and Practices], the employer shall conform to [specific provisions]. [Reference Section 07F .0605—Fall Protection for specific program requirements.]

1. The fall protection plan shall be made available and communicated to exposed employee(s) prior to the employee(s) beginning work, and such communication shall be documented.

#### 7F .0605—Fall Protection—(i) Emergency and Rescue Procedures.

1. The employer shall establish procedures for rescue of employees in the event of an emergency, which shall include whether the employer will designate its own employees to perform the rescue procedures or whether the employer will designate a third-party to perform the rescue procedures. The procedures shall be documented and available for review by the Deputy Commissioner of Labor for Occupational Safety and Health or his designee, upon request.

#### 7F .0606—Non-Ionizing Radiation—(b) Protection from Radiation Exposure.

2. Control Procedures. Prior to employees performing work in areas on a communication tower where RF exposure levels exceed the occupational/controlled MPE values stated in 47 CFR 1.1310, the employer shall enact and enforce written control procedures that provide for the reduction, elimination, avoidance or protection from such RF levels.

#### 7F .0606—Non-Ionizing Radiation—(d) RF Safety Program.

When employees are exposed to RF fields in excess of the general population/uncontrolled MPE limits established in 47 CFR 1.1310 as a consequence of their employment, the
employer shall develop, implement, and maintain a written safety and health program with site specific procedures and elements based on the electromagnetic radiation hazards present, in accordance with 13 NCAC 07F .0609(g) [RF Training].

**7F .0607—Hoists and Gin Poles—(a) Hoists.** Hoists used during the construction, alteration, repair, maintenance, or demolition of communication towers shall meet the following requirements:

3. Employers shall maintain at the work site the operating manual developed by the manufacturer for the specific make and model hoist being used, as well as documentation for any inspection, testing, and operator training certification required by the rules in this Section.

**7F .0609—Training—(c) Written Work Procedures.**

1. The employer’s written work procedures shall be provided to employees as part of their training.

**7F .0609—Training—(e) Fall Protection Training.**

1. The employer shall provide a training program for each employee who might be exposed to fall hazards.

**Inspections and Tests**

**7F .0603—Employer Responsibilities—(c) A competent person shall visually inspect** the tower base for damage, deterioration, structural deficiencies and functionality of safety features and anchorages before employees are allowed to climb the tower at heights above six feet. Additionally, the employer shall ensure that the tower is visually inspected for these items, as it is ascended, to the elevation point where work is being performed.

**7F .0604—Hazard Identification and Assessment—(b) The employer shall perform and document the hazard assessments** required by this Rule:

1. Initially and daily for each site prior to permitting employees to climb the structure; and

2. When safety and health information or change in workplace conditions indicates that a new or increased hazard may be present.

**7F .0605—Fall Protection—(b) Pre-Climb Planning and Inspection.** In addition to the criteria for pre-climb planning and inspection included in Paragraph (g) [Ladder Safety System] of this Rule, the employer shall ensure that the following items occur prior to employees climbing the tower at heights above six (6) feet:

2. All climbing facilities shall be visually inspected daily at the tower base by a competent person for rust, corrosion, deterioration, or other hazards. Additionally, the employer shall ensure that the climbing facilities are visually inspected for these items, as it is ascended, to the elevation point where work is being performed. If any such hazard is identified during this inspection, employees shall not use the climbing facility until such hazards are abated.

3. A competent person shall ensure that all fall protection equipment is inspected prior to each use for wear, damage, defect or other deterioration by employees who have been trained in accordance with 13 NCAC 07F .0609 [Training]. Defective equipment shall be identified as defective and immediately removed from service.

**7F .0605—Fall Protection—(g) Ladder Safety Systems.** The employer shall ensure that, in addition to the applicable criteria in 29 CFR 1926, Subpart X, ladder safety systems and related support systems for fixed ladders that are utilized by employees as a means of 100% fall protection conform to the following criteria:

1. Prior to climbing the structure, the employer shall ensure that the employee(s) have tested the ladder safety system for proper operation and that all components utilized with the ladder safety system are compatible.
7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(4) Inspections.

(A) Gin poles shall have a documented inspection annually by a qualified person;

(B) In addition to the annual inspection, the employer shall designate a competent person who shall visually inspect the gin pole and rigging prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired before use continues;

(C) During each inspection, the qualified or competent person shall inspect the legs and bracing members for bends or distortion;

(D) During each inspection, the qualified or competent person shall inspect the straightness tolerances for the overall assembly (including leg and bracing members);

(E) During each inspection, the qualified or competent person shall visually inspect the welds for quality, deformation, cracks, rust, or pitting or loss of cross sectional area;

(F) During each inspection, the qualified or competent person shall inspect the members for excessive rust or pitting or loss of cross sectional area;

(G) During each inspection, the qualified or competent person shall inspect the sling attachment points for distortion, wear, cracks, and rust;

(I) During each inspection, the qualified or competent person shall inspect side plates on rooster heads for distortion or other damage;

(J) During each inspection, the qualified or competent person shall inspect all attachment hardware, including rigging and parts such as cables, slings, and sling attachment points, shackles, hooks, and sockets for wear, distortion, cracks, and rust.

Recordkeeping

7F .0604—Hazard Identification and Assessment—(b) The employer shall perform and document the hazard assessments required by this Rule:

(1) Initially and daily for each site prior to permitting employees to climb the structure; and

(2) When safety and health information or change in workplace conditions indicates that a new or increased hazard may be present.

7F .0605—Fall Protection—(i) Emergency and Rescue Procedures.

(3) Third-Party to Perform Rescue Procedures. An employer who designates a third-party rescue and emergency service to provide elevated (high angle) rescue and emergency services shall take the following measures:

(A) Obtain verification from the third-party rescue team or service that it is able to respond to a rescue summons in a timely manner;

(B) Obtain verification from the third-party rescue team or service that it is proficient with rescue-related tasks and equipment as they relate to rescuing climbers from elevated heights on communication structures.
7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(2) Gin Pole Use.
   (A) A user’s gin pole load chart shall be provided for each pole.

7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(4) Inspections.
   (A) Gin poles shall have a documented inspection annually by a qualified person.

7F .0608—Recordkeeping—In order to fulfill responsibilities under the provisions of the rules in this Section, the employer shall, upon request, provide the Deputy Commissioner of Labor for Occupational Safety and Health or his designee access to the following records:

   (1) Training Records. All material related to the employer’s training and education program, pursuant to 13 NCAC 07F .0609 [Training].

   (2) Medical Records and Non-Ionizing Radiation Exposure Records. All medical records (in accordance to 29 CFR 1910.1020(d)(1)(i)) [Access to Employee Exposure and Medical Records] and material related to each analysis using exposure or medical records (in accordance with 29 CFR 1910.1020(d)(1)(iii) [Access to Employee Exposure and Medical Records].

   (3) Equipment Inspections and Testing Records. All material related to the modification, repair, test, calibration or maintenance service of all equipment.

7F .0609—Training—(f) Hoist Operator Training. The employer shall maintain documentation that the hoist operator has practical training on the hoist he is operating. Training of hoist operators shall meet the requirements of 29 CFR 1910.179 [Overhead and Gantry Cranes] and 29 CFR 1926, Subpart N [Helicopters, Hoists, Elevators, and Conveyors].

7F .0609—Training—(i) Training Records.

   (1) The employer shall certify that each employee has been trained by preparing a certification record. [Reference Section 07F .0609—(i) Training Records for specific requirements.]

   (2) A copy of the training lesson plan for each topic of instruction shall be maintained by the employer.

   (3) The certification record shall be prepared at the completion of the training required by this Rule and shall be maintained for the duration of the employee’s employment.

   (4) The most current certification record shall be kept available for review by the Deputy Commissioner of Labor for Occupational Safety and Health or his designee, upon request.

   (5) An employer may accept training records or certificates for previous training if the employer verifies that all training and knowledge is current and applicable to the new employee’s job duties.

Certification

7F .0605—Fall Protection—(j) First Aid/CPR Training and Supplies. In addition to the requirements of 29 CFR 1910.151 and 29 CFR 1926.50—Medical Services and First Aid, the employer shall ensure that at least two employees on site are trained and hold current certifications in basic first aid and cardiopulmonary resuscitation (CPR) issued by the American Red Cross or any other organization whose standards are equivalent to the American Red Cross; provided, however, where there are only two employees on site, then an employer may comply with the requirements of this Paragraph if one employee is trained and holds current certifications in basic first aid and CPR and one employee has been designated by the employer as a probationary employee and has been employed for less than six months.
7F .0607—Hoists and Gin Poles—(a) Hoists. Hoists used during the construction, alteration, repair, maintenance, or demolition of communication towers shall meet the following requirements:

(3) Employers shall maintain at the work site the operating manual developed by the manufacturer for the specific make and model hoist being used, as well as documentation for any inspection, testing, and operator training certification required by the rules in this Section.

7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(2) Gin Pole Use. (C) Modifications or repairs of a gin pole shall be made with like or similar materials to meet or exceed the original specifications. Modifications or repairs shall be recertified by a licensed professional engineer.

7F .0609—Training—(i) Training Records.

(1) The employer shall certify that each employee has been trained by preparing a certification record. [Reference Section 07F .0609—(i) Training Records for specific requirements.]

(2) A copy of the training lesson plan for each topic of instruction shall be maintained by the employer.

(3) The certification record shall be prepared at the completion of the training required by this Rule and shall be maintained for the duration of the employee’s employment.

(4) The most current certification record shall be kept available for review by the Deputy Commissioner of Labor for Occupational Safety and Health or his designee, upon request.

(5) An employer may accept training records or certificates for previous training if the employer verifies that all training and knowledge is current and applicable to the new employee’s job duties.

Training and Communications

7F .0605—Fall Protection—(h) Fall Protection Plan. This Paragraph applies when employees are working on a structure where no adequate tie-off anchorage point(s) exist, the fall protection systems described in Paragraph (c) [Fall Protection Systems] of this Rule are not feasible or create a greater hazard, and the work cannot be completed utilizing an alternative means of access to the work area such as an aerial lift or elevated work platform. If an employer demonstrates the foregoing conditions are present, then in addition to the criteria in 29 CFR 1926.502(k) [Fall Protection Systems Criteria and Practices], the employer shall conform to the following provisions:

(1) The employer shall ensure that each employee under the fall protection plan has been trained as a qualified climber.

(2) The fall protection plan shall be made available and communicated to exposed employee(s) prior to the employee(s) beginning work, and such communication shall be documented.

7F .0605—Fall Protection—(i) Emergency and Rescue Procedures.

(2) Employer to Perform Rescue Procedures. An employer whose employees have been designated to provide elevated (high angle) rescue and emergency services shall take the following measures:

(A) Ensure at least two trained and designated rescue employees are on site when employees are working at heights over six feet on the tower, provided however, where there are only two employees on site, then an employer may comply with the requirements of this Part if one employee is a trained and designated rescue employee and one employee has been employed for less than nine months and has received documented orientation from the employer outlining steps to take in an emergency.
(C) *Train designated rescue employees* so they are proficient in the use and maintenance of PPE and high angle rescue equipment needed to conduct elevated rescues.

(D) *Train designated rescue employees* to perform assigned rescue duties to ensure that they become competent to perform such duties, including *conducting simulated rescue operations at least once every 12 months*.

**7F .0605—Fall Protection—(i) Emergency and Rescue Procedures.**

(3) **Third-Party to Perform Rescue Procedures.** An employer who designates a third-party rescue and emergency service to provide elevated (high angle) rescue and emergency services *shall take the following measures*:

(E) *Inform the selected rescue team or service, prior to the first day on which employee(s) perform work at heights over six feet on the tower, of the site and location of the tower(s) to be climbed; the hazard(s) identified on the site; the number of employees that will climb the tower(s); the height(s) at which employee(s) will be working; the name(s) and telephone number(s) for any employer contact(s); and, any other information that is requested by the rescue team or service.*

**7F .0605—Fall Protection—(j) First Aid/CPR Training and Supplies.** In addition to the requirements of 29 CFR 1910.151 and 29 CFR 1926.50 [Medical Services and First Aid], the employer shall ensure that at least two employees on site are trained and hold current *certifications* in basic first aid and cardiopulmonary resuscitation (CPR) issued by the American Red Cross or any other organization whose standards are equivalent to the American Red Cross; provided, however, where there are only two employees on site, then an employer may comply with the requirements of this Paragraph if one employee *is trained and holds current certifications in basic first aid and CPR* and one employee has been designated by the employer as a probationary employee and has been employed for less than six months.

**7F .0606—Non-Ionizing Radiation—(b) Protection from Radiation Exposure.**

(1) Employees shall not enter areas where RF exposure levels are above the general population/uncontrolled MPE’s described in 47 CFR 1.1310 *unless they understand* the potential for exposure and can exercise control over the exposure.

**7F .0609—Training—(c) Written Work Procedures.**

(1) The employer’s *written work procedures shall be provided to employees* as part of their training.

**7F .0609—Training—(d) Hazardous Materials Training.** Employees required to handle or use flammable liquids, gases, or toxic *materials shall be instructed* in the safe handling and use of these *materials* and made aware of the specific requirements contained in 29 CFR 1926.55—Gases, Vapors, Fumes, Dusts and Mists and 29 CFR 1910.1200—Hazard Communication, as applicable.

**7F .0609—Training—(e) Fall Protection Training.**

(1) The employer *shall provide a training program* for each employee who might be exposed to fall hazards.

(3) The employer *shall ensure that each employee has been trained by or under the supervision of a qualified person in [specific areas]. [Reference Section 07F .0609—Fall Protection Training for specific requirements.]*

**7F .0609—Training—(f) Hoist Operator Training.** The employer *shall maintain documentation that the hoist operator has practical training* on the hoist he is operating. Training of hoist operators shall meet the requirements of 29 CFR 1910.179 [Overhead and Gantry Cranes] and 29 CFR 1926, Subpart N [Helicopters, Hoists, Elevators, and Conveyors].
7F .0609—Training—(g) RF Training.

(1) All employees exposed in excess of the general population/uncontrolled MPE limits stated in 47 CFR 1.1310 shall receive RF hazard awareness training by or under the supervision of a qualified person in [specific areas]. [Reference Section 07F .0609—RF Training for specific training requirements.]

(2) Employers shall ensure that each affected employee who works in an electromagnetic energy environment with potential RF exposure in excess of the general population/uncontrolled MPE limits stated in 47 CFR 1.1310 has access to and understands the specific site information related to the RF energy and RF fields present at each individual site.

7F .0609—Training—(h) Retraining. Unless stated otherwise in this Rule, when the employer or qualified person has reason to believe that any employee who has already been trained does not have the understanding and skill required to safely perform the work assigned, the employer shall retrain each such employee. [Reference Section 07F .0609—(h) Retraining for specific requirements.]

Competent Person

7F .0603—Employer Responsibilities—(b) The employer shall ensure that at least two employees, including at least one competent person, are on site at all times when employees are exposed to fall hazards above six feet, provided however, an employer shall not be required to have more than two employees on site at any given time.

7F .0603—Employer Responsibilities—(c) A competent person shall visually inspect the tower base for damage, deterioration, structural deficiencies and functionality of safety features and anchorages before employees are allowed to climb the tower at heights above six feet. Additionally, the employer shall ensure that the tower is visually inspected for these items, as it is ascended, to the elevation point where work is being performed.

7F .0604—Hazard Identification and Assessment—(c) The hazard assessments required by this Rule shall:

(1) Be performed by a competent person.

7F .0605—Fall Protection—(b) Pre-Climb Planning and Inspection. In addition to the criteria for pre-climb planning and inspection included in Paragraph (g) [Ladder Safety System] of this Rule, the employer shall ensure that the following items occur prior to employees climbing the tower at heights above six (6) feet:

(1) All climbing jobs shall be planned by a competent person.

(3) A competent person shall ensure that all fall protection equipment is inspected prior to each use for wear, damage, defect or other deterioration by employees who have been trained in accordance with 13 NCAC 07F.0609 [Training]. Defective equipment shall be identified as defective and immediately removed from service.

7F .0606—Non-Ionizing Radiation—(c) Use of Controls. Prior to commencing work on a communication tower, a competent person shall assess potential RF hazards of areas which may be accessed by employees in the course of their work, and post temporary signage to indicate areas where the RF hazard exceeds the general population/uncontrolled MPE limits for exposure set forth in 47 CFR 1.1310. Temporary signage shall remain in place while work is performed and the hazard exists.

7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(4) Inspections. 
   (B) In addition to the annual inspection, the employer shall designate a competent person who shall visually inspect the gin pole and rigging prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired before use continues.
During each inspection, the qualified or competent person shall inspect the legs and bracing members for bends or distortion.

During each inspection, the qualified or competent person shall inspect the straightness tolerances for the overall assembly (including leg and bracing members).

During each inspection, the qualified or competent person shall visually inspect the welds for quality, deformation, cracks, rust, or pitting or loss of cross sectional area.

During each inspection, the qualified or competent person shall inspect the members for excessive rust or pitting or loss of cross sectional area.

During each inspection, the qualified or competent person shall inspect the sling attachment points for distortion, wear, cracks, and rust.

During each inspection, the qualified or competent person shall ensure that proper bolts are utilized and all associated hardware is in good condition.

During each inspection, the qualified or competent person shall inspect side plates on rooster heads for distortion or other damage.

During each inspection, the qualified or competent person shall inspect all attachment hardware, including rigging and parts such as cables, slings, and sling attachment points, shackles, hooks, and sockets for wear, distortion, cracks, and rust.

During each inspection, the qualified or competent person shall ensure that all problems identified during the inspection are corrected before placing the gin pole into service.

Qualified Person

7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(4) Inspections.

(A) Gin poles shall have a documented inspection annually by a qualified person.

7F .0609—Training—(a) In order for employees to work at heights above six feet on a communication tower, they must be approved for such work by a qualified person.

7F .0609—Training—(b) Competency of the Trainer. Training of employees in communication tower work shall be performed by or under the supervision of a qualified person.

07F .0609—Training—(e) Fall Protection Training.

(3) The employer shall ensure that each employee has been trained by or under the supervision of a qualified person in [specific areas]. [Reference Section 07F .0609—Fall Protection Training for specific training requirements.]

07F .0609—Training—(g) RF Training.

(1) All employees exposed in excess of the general population/uncontrolled MPE limits stated in 47 CFR 1.1310 shall receive RF hazard awareness training by or under the supervision of a qualified person in [specific areas]. [Reference Section 07F .0609—RF Training for specific training requirements.]
Signs, Markings and Tags

7F .0606—Non-Ionizing Radiation—(c) Use of Controls. Prior to commencing work on a communication tower, a competent person shall assess potential RF hazards of areas which may be accessed by employees in the course of their work, and post temporary signage to indicate areas where the RF hazard exceeds the general population/uncontrolled MPE limits for exposure set forth in 47 CFR 1.1310. Temporary signage shall remain in place while work is performed and the hazard exists.

7F .0607—Hoists and Gin Poles—(b) Gin Poles.

(1) Rigging Equipment.

(C) Only alloy chains marked by the manufacturer with an 8, T, or an A, rated for lifting, shall be used;

(D) Only quenched and tempered hooks and shackles shall be used. The manufacturer’s load rating shall be stamped on the product.

SECTION 7F .0700—BLASTING AND USE OF EXPLOSIVES

Scope/Application: The provisions of Subpart U of Title 29, Part 1926 of the Code of Federal Regulations promulgated as of March 7, 2005, and exclusive of subsequent amendments, are incorporated by reference except as modified or amended in 13 NCAC 07F .0701 through .0716.

STANDARD HIGHLIGHTS

• Programs, Policies, and Procedures—procedures
• Inspections and Tests—stray current survey, inspections
• Recordkeeping—inventory
• Certification—maintain on site
• Training and Communications—fire extinguishers, qualifications
• Medical Surveillance—blaster qualifications
• Competent Person—evaluations
• Qualified Person—blaster-in-charge, flagman
• Signs, Markings and Tags—signs, barricades, flags

Programs, Policies and Procedures

7F .0708—Loading of Explosives or Blasting Agents—Additions and amendments to 29 CFR 1926.905 [Loading of Explosives or Blasting Agents] apply throughout the Rules in this Section as follows:

(a) Procedures that permit safe and efficient loading shall be established by the Blaster-in-Charge or the employer before loading is started.

Inspections and Tests

7F .0709—Initiation of Explosive Charges-Electric Blasting—Additions and amendments to 29 CFR 1926.906 [Initiation of Explosive Charges-Electric Blasting] apply throughout the Rules in this Section as follows:

(b) If the presence of extraneous electricity is possible, the blaster shall conduct a stray current survey. No holes shall be loaded using electric detonators until the danger of extraneous electricity is eliminated.

(q) A blaster shall test blasting circuits. [Reference Section 07F .0709—Initiation of Explosive Charges for specific requirements.]
7F .0711—Use of Detonating Cord and Shock Tube—Additions and amendments to 29 CFR 1926.908 [Use of Detonating Cord and Shock Tube] apply throughout the Rules in this Section as follows:

(g) All detonating cord connections, shock tube connections and splices shall be inspected before firing the blast.

7F .0713—Inspection After Blasting—Additions and amendments to 29 CFR 1926.910 [Inspection After Blasting] apply throughout the Rules in this Section as follows:

(a) Sufficient time shall be allowed, not less than 15 minutes in tunnels, for the smoke and fumes to dissipate before returning to the blast site. Subsequently, the blaster shall inspect the blast site and surrounding rubble for signs of misfires. If a misfire is found, employee access to the blast area shall be controlled pursuant to 1926.911. Where fumes, fire, or dust are a potential hazard (e.g., in tunnels), the muck pile shall be wetted down prior to general employees returning to the blast site.

7F .0714—Misfires—Additions and amendments to 29 CFR 1926.911 [Misfires] apply throughout the Rules in this Section as follows:

(b) No work shall be done except that necessary to remove the hazard of the misfire. Only those employees necessary to do the work shall enter the potential blast area. Only the Blaster-in-Charge, and the absolute minimum number of competent, personnel (as defined in 29 CFR 1926 Subparts L and P), necessary to assess the situation shall approach the hole to inspect the misfire.

Recordkeeping

7F .0703—General Provisions—Additions and amendments to 29 CFR 1926.900 [General Provisions] apply throughout the Rules in this Section as follows:

(d) All explosives shall be accounted for at all times. Explosives not being used and not attended shall be kept in a magazine or container that meets the U.S. Bureau of Alcohol, Tobacco and Firearms (hereafter, ATF) storage and access requirements contained in 27 CFR Part 55 [ATF Explosive Rulings and Procedures], which is incorporated herein by reference, including any subsequent amendments and editions. Each employer shall maintain an inventory and use record of all explosives in that employer’s possession. The employer, or employer authorized person, shall comply with all applicable local, State and federal laws and regulations requiring notification of any loss, theft, or unauthorized entry into a magazine or container.

(k) Precautions shall be taken to prevent accidental discharge of electric detonators from current induced by radar, radio transmitters including 2-way radios and mobile telephones, lightning, adjacent powerlines, dust storms, or other sources of extraneous electricity. These precautions shall include:

(3)(i) The prominent display of adequate signs, warning against the use of mobile radio transmitters, (e.g., telephones and 2-way radios) on all roads within 1,000 feet of electric blasting operations. If adherence to the 1,000-foot distance would create an operational handicap, then a competent person (as defined in 29 CFR 1926 Subparts L and P) shall be consulted to evaluate the particular situation, and alternative provisions may be made which are designed to prevent any premature firing of electric detonators. A description of any such alternatives shall be reduced to writing and shall be certified by the competent person consulted as meeting the purposes of this subdivision. The description shall be maintained at the construction during the duration of the work, and shall be available for inspection by representatives of the Commissioner of Labor.

7F .0704—Blaster Qualifications. Additions and amendments to 29 CFR 1926.901 [Blaster Qualifications] apply throughout the Rules in this Section as follows:

(d) Blasters shall be required by the employer to furnish evidence satisfactory to the employer of competency in handling explosives and performing in a safe manner the type of blasting that will be required.
7F .0708—Loading of Explosives or Blasting Agents—Additions and amendments to 29 CFR 1926.905 [Loading of Explosives or Blasting Agents] apply throughout the Rules in this Section as follows:

(t) The blaster shall keep an accurate, up-to-date record of explosives, blasting agents, and blasting supplies used in each blast and shall keep an accurate running inventory of all explosives and blasting agents in the blaster’s custody.

Certification

7F .0703—General Provisions—Additions and amendments to 29 CFR 1926.900 [General Provisions] apply throughout the Rules in this Section as follows:

(k) Precautions shall be taken to prevent accidental discharge of electric detonators from current induced by radar, radio transmitters including 2-way radios and mobile telephones, lightning, adjacent powerlines, dust storms, or other sources of extraneous electricity. These precautions shall include:

(3)(i) The prominent display of adequate signs, warning against the use of mobile radio transmitters, (e.g., telephones and 2-way radios) on all roads within 1,000 feet of electric blasting operations. If adherence to the 1,000-foot distance would create an operational handicap, then a competent person (as defined in 29 CFR 1926 Subparts L and P) shall be consulted to evaluate the particular situation, and alternative provisions may be made which are designed to prevent any premature firing of electric detonators. A description of any such alternatives shall be reduced to writing and shall be certified by the competent person consulted as meeting the purposes of this subdivision. The description shall be maintained at the construction during the duration of the work, and shall be available for inspection by representatives of the Commissioner of Labor.

Training and Communications

7F .0704—Blaster Qualifications. Additions and amendments to 29 CFR 1926.901 [Blaster Qualifications] apply throughout the Rules in this Section as follows:

(c) Blasters shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of state, federal and local laws and regulations which pertain to explosives.

(e) Blasters shall be knowledgeable in the use of each type of blasting method used.

(f) Pursuant to 29 CFR 1926.21(b) [Safety Training and Education], the employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to the employee’s work and work environment.

7F .0705—Surface Transportation of Explosives—Additions and amendments to 29 CFR 1926.902 [Surface Transportation of Explosives] apply throughout the Rules in this Section as follows:

(b) Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver. The driver shall be familiar with the local, state, and federal regulations governing the transportation of explosives.

(i) Each vehicle used for transportation of explosives shall be equipped with a fully charged fire extinguisher, in good condition (as described in 29 CFR 1926.150). An extinguisher, approved by a nationally recognized testing laboratory, of not less than 10-ABC rating will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on the vehicle.
Medical Surveillance

**7F .0704—Blaster Qualifications.** Additions and amendments to 29 CFR 1926.901 [Blaster Qualifications] apply throughout the Rules in this Section as follows:

(b) Blasters and others authorized to handle or transport explosive materials or conduct blast site activities shall be in sufficiently good physical condition to perform the work safely and not be addicted to, or under the influence of, narcotics, intoxicants, or similar types of drugs.

Competent Person

**7F .0703—General Provisions**—Additions and amendments to 29 CFR 1926.900 [General Provisions] apply throughout the Rules in this Section as follows:

(k) Precautions shall be taken to prevent accidental discharge of electric detonators from current induced by radar, radio transmitters including 2-way radios and mobile telephones, lightning, adjacent powerlines, dust storms, or other sources of extraneous electricity. These precautions shall include:

(3)(i) The prominent display of adequate signs, warning against the use of mobile radio transmitters, (e.g., telephones and 2-way radios) on all roads within 1,000 feet of electric blasting operations. If adherence to the 1,000-foot distance would create an operational handicap, then a competent person (as defined in 29 CFR 1926 Subparts L and P) shall be consulted to evaluate the particular situation, and alternative provisions may be made which are designed to prevent any premature firing of electric detonators. A description of any such alternatives shall be reduced to writing and shall be certified by the competent person consulted as meeting the purposes of this subdivision. The description shall be maintained at the construction during the duration of the work, and shall be available for inspection by representatives of the Commissioner of Labor.

Qualified Person

**7F .0703—General Provisions**—Additions and amendments to 29 CFR 1926.900 [General Provisions] apply throughout the Rules in this Section as follows:

(a) The employer shall permit only persons qualified pursuant to §1926.901 [Blaster Qualifications] to handle and use explosives. A blaster shall be in charge of each blasting operation; hereafter, referred to as the Blaster-in-Charge.

(n) Delivery and issue of explosives shall only be made by and to authorized persons (as defined in 27 CFR Part 55) and into magazines or temporary storage or handling areas that meet the ATF storage requirements contained in 27 CFR Part 55 [ATF Explosive Rulings and Procedures].

**7F .0704—Blaster Qualifications.** Additions and amendments to 29 CFR 1926.901 [Blaster Qualifications] apply throughout the Rules in this Section as follows:

(c) Blasters shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of state, federal and local laws and regulations which pertain to explosives.

**7F .0708—Loading of Explosives or Blasting Agents**—Additions and amendments to 29 CFR 1926.905 [Loading of Explosives or Blasting Agents] apply throughout the Rules in this Section as follows:

(t) The blasters shall keep an accurate, up-to-date record of explosives, blasting agents, and blasting supplies used in each blast and shall keep an accurate running inventory of all explosives and blasting agents in the blaster’s custody.
7F.0709—Initiation of Explosive Charges—Electric Blasting. Additions and amendments to 29 CFR 1926.906 [Initiation of Explosive Charges—Electric Blasting] apply throughout the Rules in this Section as follows:

(b) If the presence of extraneous electricity is possible, the blaster shall conduct a stray current survey. No holes shall be loaded using electric detonators until the danger of extraneous electricity is eliminated.

(q) A blaster shall test blasting circuits. [Reference Section 07F.0709—Initiation of Explosive Charges for specific requirements.]

(s) The blaster shall assure that all connections are made from the bore hole back to the source of firing current, and that the leading wires remain shorted, except during testing, and not connected to the blasting machine or other source of current until the blast is to be fired. Only the blaster, or a qualified person (as described in 1926.900(a)—General Provisions and 1926.901—Blaster Qualifications) under the direct control of the blaster, shall make lead wire connections or fire the shot.

7F.0712—Firing the Blast—Additions and amendments to 29 CFR 1926.909 [Firing the Blast] apply throughout the Rules in this Section as follows:

(a) The Blaster-in-Charge shall establish a code of blasting signals and all blast site employees shall familiarize themselves with and conform to the code.

(c) Flagmen shall be safely stationed on highways which pass through the blast area so as to stop traffic during blasting.

7F.0714—Misfires—Additions and amendments to 29 CFR 1926.911 [Misfires] apply throughout the Rules in this Section as follows:

(b) No work shall be done except that necessary to remove the hazard of the misfire. Only those employees necessary to do the work shall enter the potential blast area. Only the Blaster-in-Charge, and the absolute minimum number of competent personnel (as defined in 29 CFR 1926 Subparts L and P), necessary to assess the situation shall approach the hole to inspect the misfire.

7F.0715—Underwater Blasting—Additions and amendments to 29 CFR 1926.912 [Underwater Blasting] apply throughout the Rules in this Section as follows:

(a) In underwater blasting, no shot shall be fired without the approval of the Blaster-in-Charge.

(h) Prior to firing the blast, the blaster shall determine the method(s) that will be used for detecting misfires and take preparatory steps (e.g., noting obvious indications of misfire, attaching float(s) that will be released by the firing, staging underwater cameras, or other appropriate means). Misfires shall be handled in accordance with the requirements of 1926.911 [Misfires].

Signs, Markings and Tags

7F.0703—General Provisions—Additions and amendments to 29 CFR 1926.900 [General Provisions] apply throughout the Rules in this Section as follows:

(k) Precautions shall be taken to prevent accidental discharge of electric detonators from current induced by radar, radio transmitters including 2-way radios and mobile telephones, lightning, adjacent powerlines, dust storms, or other sources of extraneous electricity. These precautions shall include:

(3)(i) The prominent display of adequate signs, warning against the use of mobile radio transmitters, (e.g., telephones and 2-way radios) on all roads within 1,000 feet of electric blasting operations. If adherence to the 1,000-foot distance would create an operational handicap, then a competent
person (as defined in 29 CFR 1926 Subparts L and P) shall be consulted to evaluate the particular situation, and alternative provisions may be made which are designed to prevent any premature firing of electric detonators. A description of any such alternatives shall be reduced to writing and shall be certified by the competent person consulted as meeting the purposes of this subdivision. The description shall be maintained at the construction during the duration of the work, and shall be available for inspection by representatives of the Commissioner of Labor.

(u) To guard against unauthorized entry or initiation of a blast, a blast site shall be attended if loading is suspended or loaded holes are awaiting firing. Additionally, the blast site shall be barricaded, posted, and flagged as necessary to prevent unauthorized access.

7F.0705—Surface Transportation of Explosives. Additions and amendments to 29 CFR 1926.902 [Surface Transportation of Explosives] apply throughout the Rules in this Section as follows:

(h) Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word “Explosives” in red letters, not less than 4 inches in height, on white background. The motor vehicle or conveyance may also display, in such a manner that it will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word “Explosives” painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.

7F.0706—Underground Transportation of Explosives—Additions and amendments to 29 CFR 1926.903 [Underground Transportation of Explosives] apply throughout the Rules in this Section as follows:

(m) Any powder car or conveyance used for transporting explosives or blasting agents shall bear a reflecting sign on each side with the word “Explosives”. The sign’s letters shall be a minimum of 4 inches in height and shall be on a background of sharply contrasting color.

7F.0708—Loading of Explosives or Blasting Agents—Additions and amendments to 29 CFR 1926.905 [Loading of Explosives or Blasting Agents] apply throughout the Rules in this Section as follows:

(s) Areas in which loading is suspended or loaded holes are awaiting firing shall be attended, and barricaded, posted, or flagged as needed to guard against unauthorized entry or initiation.
SECTION 3

29 CFR 1904 Subpart B–F—Recordkeeping

Scope/Application: The purpose of this rule (Part 1904—Recordkeeping) is to require employers to record and report work-related fatalities, injuries and illnesses. All employers covered by the Occupational Safety and Health Act (OSH Act) are covered by these Part 1904 regulations. However, most employers do not have to keep OSHA injury and illness records unless OSHA or the Bureau of Labor Statistics (BLS) informs them in writing that they must keep records. For example, employers with 10 or fewer employees and business establishments in certain industry classifications are partially exempt from keeping OSHA injury and illness records.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—review
- Recordkeeping—reporting fatalities, hospitalizations, retention
- Certification—certify annual summary
- Training and Communications—inform employees
- Signs, Markings and Tags—posting log

Programs, Policies, and Procedures

1904.32(a)—Annual Summary. Basic requirement. At the end of each calendar year, you must:

   1904.32(a)(1)—Review the OSHA 300 Log to verify that the entries are complete and accurate, and correct any deficiencies identified;

   1904.32(a)(2)—Create an annual summary of injuries and illnesses recorded on the OSHA 300 Log;

1904.35(b)(1)(i)—Employee Involvement. You must set up a way for employees to report work-related injuries and illnesses promptly.

Recordkeeping

1904.1(a)(1)—Partial Exemption for Employers With 10 or Fewer Employees—If your company had ten (10) or fewer employees at all times during the last calendar year, you do not need to keep OSHA injury and illness records unless OSHA or the BLS informs you in writing that you must keep records under § 1904.41 [Annual OSHA Injury and Illness Survey of Ten or More Employers] or § 1904.42 [Requests From the Bureau of Labor Statistics for Data]. However, as required by § 1904.39 [Reporting Fatalities and Multiple Hospitalization Incidents to OSHA], all employers covered by the OSH Act must report to OSHA any workplace incident that results in a fatality or the hospitalization of three or more employees.

1904.1(a)(2)—Partial Exemption For Employers With 10 or Fewer Employees. If your company had more than ten (10) employees at any time during the last calendar year, you must keep OSHA injury and illness records for all of such establishments unless your establishment is classified as a partially exempt industry under § 1904.2 [Partial Exemption for Establishments in Certain Industries].

1904.2(a)(1)—Partial exemption for establishments in certain industries. Basic requirement. If your business establishment is classified in a specific industry group listed in appendix A to this subpart, you do not need to keep OSHA injury and illness records unless the government asks you to keep the records under 1904.41 or 1904.42. However, all employers must report to OSHA any workplace incident that results in an employee’s fatality, inpatient hospitalization, amputation, or loss of an eye (Reference 1904.39).

1904.2(a)(2)—Partial Exemption for Establishments in Certain Industries. If one or more of your company’s establishments are classified in a non-exempt industry, you must keep OSHA injury and illness records for all of such establishments unless
your company is partially exempted because of size under § 1904.1 [Partial Exemption for Employers With 10 or Fewer Employees].

1904.4(a)—Recording Criteria—Basic requirement. Each employer required by this Part to keep records of fatalities, injuries, and illnesses must record each fatality, injury and illness. [Reference 1904.4(a) for specific requirements.]

1904.7(b)(1)—General Recording Criteria—How do I decide if a case meets one or more of the general recording criteria? A work-related injury or illness must be recorded if it results in one or more criteria. [Reference 1904.7(b)(1) for specific requirements.]

1904.8(a)—Recording Criteria for Needlestick and Sharps Injuries—Basic requirement. You must record all work-related needlestick injuries and cuts from sharp objects that are contaminated with another person’s blood or other potentially infectious material (as defined by 29 CFR 1910.1030 [Bloodborne Pathogens]). You must enter the case on the OSHA 300 Log as an injury. To protect the employee’s privacy, you may not enter the employee’s name on the OSHA 300 Log (see the requirements for privacy cases in paragraphs 1904.29(b)(6)—Forms through 1904.29(b)(9)).

1904.10(a)—Recording Criteria for Cases Involving Occupational Hearing Loss. Basic requirement. If an employee’s hearing test (audiogram) reveals that the employee has experienced a work-related Standard Threshold Shift (STS) in hearing in one or both ears, and the employee’s total hearing level is 25 decibels (dB) or more above audiometric zero (averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS, you must record the case on the OSHA 300 Log.

1904.11(a)—Recording Criteria for Work-Related Tuberculosis Cases. Basic requirement. If any of your employees has been occupationally exposed to anyone with a known case of active tuberculosis (TB), and that employee subsequently develops a tuberculosis infection, as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional, you must record the case on the OSHA 300 Log by checking the “respiratory condition” column.

1904.30(a)—Multiple Business Establishments. Basic requirement. You must keep a separate OSHA 300 Log for each establishment that is expected to be in operation for one year or longer.

1904.31(a)—Covered Employees. Basic requirement. You must record on the OSHA 300 Log the recordable injuries and illnesses of all employees on your payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers. You also must record the recordable injuries and illnesses that occur to employees who are not on your payroll if you supervise these employees on a day-to-day basis. If your business is organized as a sole proprietorship or partnership, the owner or partners are not considered employees for recordkeeping purposes.

1904.33(a)—Retention and Updating—Basic requirement. You must save the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms for five (5) years following the end of the calendar year that these records cover.

1904.33(b)(1)—Retention and Updating—Do I have to update the OSHA 300 Log during the five-year storage period? Yes, during the storage period, you must update your stored OSHA 300 Logs to include newly discovered recordable injuries or illnesses and to show any changes that have occurred in the classification of previously recorded injuries and illnesses. If the description or outcome of a case changes, you must remove or line out the original entry and enter the new information.

1904.34—Change in Business Ownership. If your business changes ownership, you are responsible for recording and reporting work-related injuries and illnesses only for that period of the year during which you owned the establishment. You must transfer the Part 1904 records to the new owner. The new owner must save all records of the establishment kept by the prior owner, as required by § 1904.33 of this Part, but need not update or correct the records of the prior owner.
Certification

1904.32(a)—Annual Summary. Basic requirement. At the end of each calendar year, you must:

1904.32(a)(3)—Certify the summary.

1904.32(b)(1)—Annual Summary—How extensively do I have to review the OSHA 300 Log entries at the end of the year? You must review the entries as extensively as necessary to make sure that they are complete and correct.

1904.32(b)(3)—Annual Summary—How do I certify the annual summary? A company executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonably believes, based on his or her knowledge of the process by which the information was recorded, that the annual Summary is correct and complete.

Training and Communications

1904.2(a)(1)—Partial exemption for establishments in certain industries. Basic requirement. If your business establishment is classified in a specific industry group listed in appendix A to this subpart, you do not need to keep OSHA injury and illness records unless the government asks you to keep the records under 1904.41 or 1904.42. However, all employers must report to OSHA any workplace incident that results in an employee’s fatality, inpatient hospitalization, amputation, or loss of an eye (Reference 1904.39).

1904.35(a)(1)—Employee Involvement. You must inform each employee of how he or she is to report an injury or illness to you.

1904.35(a)(2)—You must provide employees with the information described in paragraph (b)(1)(iii) of this section.

1904.35(b)(1)(ii)—Employee Involvement. You must tell each employee how to report work-related injuries and illnesses to you.

1904.35(b)(2)(v)(A)—Employee Involvement—When an employee, former employee, or personal representative asks for a copy of the OSHA 301 Incident Report describing an injury or illness to that employee or former employee, you must give the requester a copy of the OSHA 301 Incident Report containing that information by the end of the next business day.

1904.35(b)(2)(v)(B)—Employee Involvement. When an authorized employee representative asks for a copies of the OSHA 301 Incident Reports for an establishment where the agent represents employees under a collective bargaining agreement, you must give copies of those forms to the authorized employee representative within 7 calendar days. You are only required to give the authorized employee representative information from the OSHA 301 Incident Report section titled “Tell us about the case.” You must remove all other information from the copy of the OSHA 301 Incident Report or the equivalent substitute form that you give to the authorized employee representative.

1904.39(a)(1)—Reporting fatalities, hospitalizations, amputations, and losses of an eye as a result of work-related incidents to OSHA. Basic requirement. Within eight (8) hours after the death of any employee as a result of a work-related incident, you must report the fatality to the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor.

1904.39(a)(2)—Reporting fatalities, hospitalizations, amputations, and losses of an eye as a result of work-related incidents to OSHA. Basic requirement. Within twenty-four (24) hours after the in-patient hospitalization of one or more employees or an employee’s amputation or an employee’s loss of an eye, as a result of a work-related incident, you must report the in-patient hospitalization, amputation, or loss of an eye to OSHA.

1904.39(a)(3)—Reporting fatalities, hospitalizations, amputations, and losses of an eye as a result of work-related incidents to OSHA. Basic requirement. You must report the fatality, inpatient hospitalization, amputation, or loss of an eye using one of the following methods. [Reference 1904.39(a)(3) for specific methods.]
1904.39(b)(5)—Reporting Fatalities and Multiple Hospitalization Incidents to OSHA. *Do I have to report a fatality caused by a heart attack at work?* Yes, your local OSHA Area Office director will decide whether to investigate the incident, depending on the circumstances of the heart attack.

1904.39(b)(7)—*What if I don’t learn about an incident right away?* If you do not learn of a reportable incident at the time it occurs and the incident would otherwise be reportable under paragraphs (a) [Basic Requirement] and (b) [Implementation] of this section, you must make the report within eight (8) hours of the time the incident is reported to you or to any of your agent(s) or employee(s).

1904.40(a)—Reporting Fatalities and Multiple Hospitalization Incidents to OSHA. Basic requirement. When an authorized government representative asks for the records you keep under Part 1904 [Recordkeeping], you must provide copies of the records within four (4) business hours.

1904.42(a)—Requests From the Bureau of Labor Statistics for Data. Basic requirement. If you receive a Survey of Occupational Injuries and Illnesses Form from the Bureau of Labor Statistics (BLS), or a BLS designee, you must promptly complete the form and return it following the instructions contained on the survey form.

**Signs, Markings and Tags**

1904.32(a)—Annual Summary. Basic requirement. At the end of each calendar year, you must:

1904.32(a)(4)—*Post the annual summary.*

1904.32(b)(5)—Annual Summary—How do I post the annual summary? You must post a copy of the annual summary in each establishment in a conspicuous place or places where notices to employees are customarily posted. You must ensure that the posted annual summary is not altered, defaced or covered by other material.

1904.32(b)(6)—Annual Summary—When do I have to post the annual summary? You must post the summary no later than February 1 of the year following the year covered by the records and keep the posting in place until April 30.
SECTION 4


1926.20—GENERAL SAFETY AND HEALTH PROVISIONS

Scope/Application: Section 107 of the Act requires that it shall be a condition of each contract which is entered into under legislation subject to Reorganization Plan Number 14 of 1950 (64 Stat. 1267), as defined in 1926.12, and is for construction, alteration, and/or repair, including painting and decorating, that no contractor or subcontractor for any part of the contract work shall require any laborer or mechanic employed in the performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety.

The standards contained in this part [1926] shall apply with respect to employments performed in a workplace in a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, Trust Territory of the Pacific Islands, Wake Island, Outer Continental Shelf lands defined in the Outer Continental Shelf Lands Act, Johnston Island, and the Canal Zone.

If a particular standard is specifically applicable to a condition, practice, means, method, operation, or process, it shall prevail over any different general standard which might otherwise be applicable to the same condition, practice, means, method, operation, or process.

On the other hand, any standard shall apply according to its terms to any employment and place of employment in any industry, even though particular standards are also prescribed for the industry to the extent that none of such particular standards applies.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—initiate and maintain programs, training program
• Inspections and Tests—frequent and regular inspections
• Training and Communications—qualified employees, training program
• Competent Person—inspections
• Qualified Person—qualified
• Signs, Markings and Tags—equipment, tools, machines and materials identified as unsafe

Programs, Policies and Procedures

1926.20(b)(1)—It shall be the responsibility of the employer to initiate and maintain such programs as may be necessary to comply with this part.

1926.20(f)(2)—Training. Standards in this part requiring training on hazards and related matters, such as standards requiring that employees receive training or that the employer train employees, provide training to employees, or institute or implement a training program, impose a separate compliance duty with respect to each employee covered by the requirement. The employer must train each affected employee in the manner required by the standard, and each failure to train an employee may be considered a separate violation.

Inspections and Tests

1926.20(b)(2)—Such programs shall provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons designated by the employers.

Training and Communications

1926.20(b)(4)—The employer shall permit only those employees qualified by training or experience to operate equipment and machinery.
1926.20(f)(2)—Training. Standards in this part requiring training on hazards and related matters, such as standards requiring that employees receive training or that the employer train employees, provide training to employees, or institute or implement a **training program**, impose a separate compliance duty with respect to each employee covered by the requirement. The employer **must train each affected employee** in the manner required by the standard, and each failure to train an employee may be considered a separate violation.

**Competent Person**

1926.20(b)(2)—Such **programs** shall provide for frequent and regular inspections of the job sites, materials, and equipment to be made by **competent persons** designated by the employers.

**Qualified Person**

1926.20(b)(4)—The employer shall permit only those employees **qualified by training or experience** to operate equipment and machinery.

**Signs, Markings and Tags**

1926.20(b)(3)—The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement of this part is prohibited. Such machine, tool, material, or equipment shall either be identified as unsafe by **tagging** or **locking** the controls to render them inoperable or shall be physically removed from its place of operation.

**1926.21—SAFETY TRAINING AND EDUCATION**

**Scope/Application:** General requirements. The Secretary shall, pursuant to section 107(f) of the Act, establish and supervise programs for the education and training of employers and employees in the recognition, avoidance and prevention of unsafe conditions in employments covered by the act.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—training programs, procedures
- Training and Communications—instruct employees

**Programs, Policies, and Procedures**

1926.21(b)(1)—The employer should **avail himself of the safety and health training programs** the Secretary provides.

1926.21(b)(4)—In job site areas where harmful plants or animals are present, employees who may be exposed **shall be instructed** regarding the potential hazards, and how to avoid injury, and the **first aid procedures** to be used in the event of injury.

**Training and Communications**

1926.21(b)(2)—The employer **shall instruct each employee** in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

1926.21(b)(3)—Employees required to handle or use poisons, caustics, and other harmful substances **shall be instructed** regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required.

1926.21(b)(4)—In job site areas where harmful plants or animals are present, employees who may be exposed **shall be instructed** regarding the potential hazards, and how to avoid injury, and the **first aid procedures** to be used in the event of injury.
1926.21(b)(5)—Employees required to handle or use flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware of the specific requirements contained in Subpart D [Occupational Health and Environmental Controls], Subpart F [Fire Protection and Prevention] and other applicable subparts of this part.

1926.24—FIRE PROTECTION AND PREVENTION

Scope/Application: The employer shall be responsible for the development and maintenance of an effective fire protection and prevention program at the job site throughout all phases of the construction, repair, alteration, or demolition work. The employer shall ensure the availability of the fire protection and suppression equipment required by Subpart F [Fire Protection and Prevention] of this part.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—fire protection and prevention program at job site

Programs, Policies, and Procedures

1926.24—The employer shall be responsible for the development and maintenance of an effective fire protection and prevention program at the job site throughout all phases of the construction, repair, alteration, or demolition work. The employer shall ensure the availability of the fire protection and suppression equipment required by Subpart F [Fire Protection and Prevention] of this part.

1926.25—HOUSEKEEPING

Scope/Application: During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—housekeeping done at regular and frequent intervals

Programs, Policies and Procedures

1926.25(b)—Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal.

1926.25(c)—Containers shall be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.

1926.33—ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1020 [Access to Employee Exposure and Medical Records] of this chapter.

1910.1020—ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

Scope/Application: The purpose of this section is to provide employees and their designated representatives a right of access to relevant exposure and medical records; and to provide representatives of the Assistant Secretary a right of access to these records in order to fulfill responsibilities under the Occupational Safety and Health Act. Access by employees, their representatives, and the Assistant Secretary is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease. Each employer is responsible for assuring compliance with this section, but the activities involved in complying with the access to medical records provisions can be carried out, on behalf of the employer, by the physician or other health care personnel in charge of employee medical records. This section applies to all employee exposure and medical
records, and analyses thereof, of such employees, whether or not the records are mandated by specific occupational safety and health standards. The requirements apply to all industries and employers.

STANDARD HIGHLIGHTS

- Recordkeeping—retention requirements, safety data sheets
- Training and Communications—inform employees

Recordkeeping

1910.1020(d)(1)(i)—"Employee medical records." The medical record for each employee shall be preserved and maintained for at least the duration of employment plus thirty (30) years.

1910.1020(d)(1)(ii)—"Employee exposure records." Each employee exposure record shall be preserved and maintained for at least thirty (30) years.

1910.1020(d)(1)(ii)(A)—Background data to environmental (workplace) monitoring or measuring, such as laboratory reports and worksheets, need only be retained for one (1) year so long as the sampling results, the collection methodology (sampling plan), a description of the analytical and mathematical methods used, and a summary of other background data relevant to interpretation of the results obtained, are retained for at least thirty (30) years.

1910.1020(d)(1)(ii)(B)—Safety data sheets and paragraph (c)(5)(iv) [Employee Exposure Record] concerning the identity of a substance or agent need not be retained for any specified period as long as some record of the identity (chemical name if known) of the substance or agent, where it was used, and when it was used is retained for at least thirty (30) years. [Please note: Safety data sheets must be kept for those chemicals currently in use that are affected by the Hazard Communication Standard in accordance with 29 CFR 1910.1200(g)—Hazard Communication.]

1910.1020(d)(1)(ii)(C)—Biological monitoring results designated as exposure records by specific occupational safety and health standards shall be preserved and maintained as required by the specific standard.

1910.1020(d)(1)(iii)—"Analyses using exposure or medical records." Each analysis using exposure or medical records shall be preserved and maintain for at least thirty (30) years.

1910.1020(e)(1)(i)—Whenever an employee or designated representative requests access to a record, the employer shall assure that access is provided in a reasonable time, place, and manner. If the employer cannot reasonably provide access to the record within fifteen (15) working days, the employer shall within the fifteen (15) working days apprise the employee or designated representative requesting the record of the reason for the delay and the earliest date when the record can be made available.

1910.1020(g)(1)—Upon an employee’s first entering into employment, and at least annually thereafter, each employer shall inform current employees covered by this section specific information. [Reference paragraph (g)(1) for specific information.]

1910.1020(g)(2)—Each employer shall keep a copy of this section and its appendices, and make copies readily available, upon request, to employees. The employer shall also distribute to current employees any informational materials concerning this section which are made available to the employer by the Assistant Secretary of Labor for Occupational Safety and Health.

1910.1020(h)(1)—Whenever an employer is ceasing to do business, the employer shall transfer all records subject to this section to the successor employer. The successor employer shall receive and maintain these records.

1910.1020(h)(2)—Whenever an employer is ceasing to do business and there is no successor employer to receive and maintain the records subject to this standard, the employer shall notify affected current employees of their rights of access to records at least three (3) months prior to the cessation of the employer’s business.
Training and Communications

1910.1020(g)(1)—Upon an employee’s first entering into employment, and at least annually thereafter, each employer shall inform current employees covered by this section specific information. [Reference paragraph (g)(1) for specific information.]

1910.1020(h)(2)—Whenever an employer is ceasing to do business and there is no successor employer to receive and maintain the records subject to this standard, the employer shall notify affected current employees of their rights of access to records at least three (3) months prior to the cessation of the employer’s business.

1926.34—MEANS OF EGRESS

Scope/Application: This section applies to every building or structure exits to be so arranged and maintain as to provide free and unobstructed egress from all parts of the building or structure at all times when it is occupied.

Exceptions: No lock or fastening to prevent free escape from the inside of any building shall be installed except in mental, penal, or corrective institutions where supervisory personnel is continually on duty and effective provisions are made to remove occupants in case of fire or other emergency.

STANDARD HIGHLIGHTS
• Signs, Markings and Tags—marked exits

Signs, Markings and Tags

1926.34(b)—“Exit marking.” Exits shall be marked by a readily visible sign. Access to exits shall be marked by readily visible signs in all cases where the exit or way to reach it is not immediately visible to the occupants.

1926.35—EMPLOYEE EMERGENCY ACTION PLANS

Scope/Application: This section applies to all emergency action plans required by a particular OSHA standard.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—written emergency action plan
• Recordkeeping—written plan
• Training and Communications—review plan initially and after changes

Programs, Policies, and Procedures

1926.35(a)—“Scope and application.” This section applies to all emergency action plans required by a particular OSHA standard. The emergency action plan shall be in writing (except as provided in the last sentence of paragraph (e)(3) of this section) and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies. [Reference paragraph (b) for program elements.]

1926.35(c)(1)—The employer shall establish an employee alarm system which complies with § 1926.159 [Employer Alarm Systems].

1926.35(d)—“Evacuation.” The employer shall establish in the emergency action plan the types of evacuation to be used in emergency circumstances.

1926.35(e)(3)—The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.
Recordkeeping

1926.35(a)—“Scope and application.” This section applies to all emergency action plans required by a particular OSHA standard. The emergency action plan shall be in writing (except as provided in the last sentence of paragraph (e)(3) of this section) and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies. [Reference paragraph (b) for program elements.]

1926.35(e)(3)—The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.

Training and Communications

1926.35(e)(1)—Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

1926.35(e)(2)—The employer shall review the plan with each employee covered by the plan at the following times:

1926.35(e)(2)(i)—Initially when the plan is developed.

1926.35(e)(2)(ii)—Whenever the employee’s responsibilities or designated actions under the plan change.

1926.35(e)(2)(iii)—Whenever the plan is changed.

1926.35(e)(3)—The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.
29 CFR 1926 Subpart D—Occupational Health and Environmental Controls

1926.50—MEDICAL SERVICES AND FIRST AID

Scope/ Application: This section applies to all employers to insure the availability of medical personnel for advice and consultation on matters of occupational health. Provisions shall be made prior to commencement of the project for prompt medical attention in case of serious injury.

STANDARD HIGHLIGHTS

- Inspections and Tests—first aid kit checked initially and weekly
- Recordkeeping—documentation for first aid training
- Certification—first aid training
- Training and Communications—first aid training, verification, first aid certificate
- Signs, Markings and Tags—posting emergency phone numbers

Inspections and Tests

1926.50(d)(2)—The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item, and shall be checked by the employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

Recordkeeping

1926.50(c)—In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

Certification

1926.50(c)—In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

Training and Communications

1926.50(c)—In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

Signs, Markings and Tags

1926.50(f)—In areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted.

1926.51—SANITATION

Scope/ Application: This section applies to all places of employment as it related to potable and nonpotable water, food handling, and restroom facilities.
STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—extermination program
- Signs, Markings and Tags—signs posted

Programs, Policies and Procedures

1926.51(h)—Vermin control. Every enclosed workplace shall be so constructed, equipped, and maintain, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects, and other vermin. A continuing and effective extermination program shall be instituted where their presence is detected.

Signs, Markings and Tags

1926.51(b)(1)—Outlets for nonpotable water, such as water for industrial or firefighting purposes only, shall be identified by signs meeting the requirements of subpart G [Signs, Signal and Barricades] of this part, to indicate clearly that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.

1926.52—OCCUPATIONAL NOISE EXPOSURE

Scope/Application: This section applies to employee protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table D-2 [Permissible Noise Exposures] of this section when measured on the A-scale of a standard sound level meter at slow response.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—administrative and engineering controls, hearing conservation program

Programs, Policies and Procedures

1926.52(b)—When employees are subjected to sound levels exceeding those listed in Table D-2 [Permissible Noise Exposures] of this section, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment as required in subpart E, shall be provided and used to reduce sound levels within the levels of the table.

1926.52(d)(1)—In all cases where the sound levels exceed the values shown herein [Table D-2—Permissible Noise Exposures], a continuing, effective hearing conservation program shall be administered.

1926.53—IONIZING RADIATION

Scope/Application: In construction and related activities involving the use of sources of ionizing radiation, the pertinent provisions of the Nuclear Regulatory Commission Standards for Protection Against Radiation (10 CFR part 20), relating to protection against occupational radiation exposure, shall apply.

STANDARD HIGHLIGHTS

- Training and Communications—trained competent person
- Competent Person—specially trained

Training and Communications

1926.53(b)—Any activity which involves the use of radioactive materials or X-rays, whether or not under license from the Nuclear Regulatory Commission, shall be performed by competent persons specially trained in the proper and safe operation of such equipment. In the case of materials used under Commission license, only persons actually licensed, or competent persons under direction and supervision of the licensee, shall perform such work.
Competent Person

1926.53(b)—Any activity which involves the use of radioactive materials or X-rays, whether or not under license from the Nuclear Regulatory Commission, shall be performed by competent persons specially trained in the proper and safe operation of such equipment. In the case of materials used under Commission license, only persons actually licensed, or competent persons under direction and supervision of the licensee, shall perform such work.

[The requirements applicable to construction work under paragraphs (c) through (r) of this section are identical to those set forth at paragraphs (a) through (p) of 1910.1096—Ionizing Radiation of this chapter.]

1910.1096—IONIZING RADIATION

Scope/Application: This section applies to occupational exposure to ionizing radiation.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—procedures
- Inspections and Tests—initial, periodic, and quarterly inspections and tests
- Recordkeeping—exposure records
- Training and Communications—initial and immediate training, written 24 hour notice
- Signs, Markings and Tags—signs posted, copy of procedures posted

Programs, Policies, and Procedures

1910.1096(i)(3)—Each employer to whom this section applies shall post a current copy of its provisions and a copy of the operating procedures applicable to the work conspicuously in such locations as to insure that employees working in or frequenting radiation areas will observe these documents on the way to and from their place of employment, or shall keep such documents available for examination of employees upon request.

Inspections and Tests

1910.1096(f)(3)(i)—Initial tests, inspections, and checks of the signal-generating system shall be made to verify that the fabrication and installation were made in accordance with design plans and specifications and to develop a thorough knowledge of the performance of the system and all components under normal and hostile conditions.

1910.1096(f)(3)(ii)—Once the system has been placed in service, periodic tests, inspections, and checks shall be made to minimize the possibility of malfunction.

1910.1096(f)(3)(iii)—Following significant alterations or revisions to the system, tests and checks similar to the initial installation tests shall be made.

1910.1096(f)(3)(vi)—In addition to the initial startup and operating tests, periodic scheduled performance tests and status checks must be made to insure that the system is at all times operating within design limits and capable of the required response.

1910.1096(f)(3)(vii)—Periodic tests shall be scheduled on the basis of need, experience, difficulty, and disruption of operations. The entire system should be operationally tested at least quarterly.

Recordkeeping

1910.1096(b)(2)(iii)—The employer maintains adequate past and current exposure records which show that the addition of such a dose will not cause the individual to exceed the amount authorized in this subparagraph. As used in this subparagraph Dose to the whole body shall be deemed to include any dose to the whole body, gonad, active bloodforming organs, head and trunk, or lens of the eye.
1910.1096(i)(3)—Each employer to whom this section applies shall post a current copy of its provisions and a copy of the operating procedures applicable to the work conspicuously in such locations as to insure that employees working in or frequenting radiation areas will observe these documents on the way to and from their place of employment, or shall keep such documents available for examination of employees upon request.

1910.1096(m)(2)—In any case where an employer is required pursuant to the provisions of this paragraph to report to the U.S. Department of Labor any exposure of an individual to radiation or to concentrations of radioactive material, the employer shall also notify such individual of the nature and extent of exposure. Such notice shall be in writing and shall contain the following statement: “You should preserve this report for future reference.”

1910.1096(n)(1)—Every employer shall maintain records of the radiation exposure of all employees for whom personnel monitoring is required under paragraph (d) [Precautionary Procedures and Personal Monitoring] of this section and advise each of his employees of his individual exposure on at least an annual basis.

1910.1096(n)(2)—Every employer shall maintain records in the same units used in tables in paragraph (b) [Exposure of Individuals to Radiation in Restricted Areas] of this section and appendix B to 10 CFR part 20.

1910.1096(o)(1)—At the request of a former employee, an employer shall furnish to the employee a report of the employee’s exposure to radiation as shown in records maintained by the employer pursuant to paragraph (n)(1) [Records] of this section. Such report shall be furnished within 30 days from the time the request is made, and shall cover each calendar quarter of the individual’s employment involving exposure to radiation or such lesser period as may be requested by the employee. The report shall also include the results of any calculations and analysis of radioactive material deposited in the body of the employee. The report shall be in writing and contain the following statement: “You should preserve this report for future reference.”

Training and Communications

1910.1096(f)(3)(viii)—All employees whose work may necessitate their presence in an area covered by the signal shall be made familiar with the actual sound of the signal—preferably as it sounds at their work location. Before placing the system into operation, all employees normally working in the area shall be made acquainted with the signal by actual demonstration at their work locations.

1910.1096(i)(2)—All individuals working in or frequenting any portion of a radiation area shall be informed of the occurrence of radioactive materials or of radiation in such portions of the radiation area; shall be instructed in the safety problems associated with exposure to such materials or radiation and in precautions or devices to minimize exposure; shall be instructed in the applicable provisions of this section for the protection of employees from exposure to radiation or radioactive materials; and shall be advised of reports of radiation exposure which employees may request pursuant to the regulations in this section.

1910.1096(l)(1)—Immediate notification. Each employer shall immediately notify the Assistant Secretary of Labor or his duly authorized representative, for employees not protected by the Nuclear Regulatory Commission by means of 10 CFR part 20; paragraph (p)(2) [Nuclear Regulatory Commission Licenses] of this section, or the requirements of the laws and regulations of States named in paragraph (p)(3) [Nuclear Regulatory Commission Licenses] of this section, by telephone or telegraph of any incident involving radiation which may have caused or threatens to cause:

1910.1096(l)(1)(i)—Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual to 150 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms of any individual to 375 rems or more of radiation.

1910.1096(l)(1)(ii)—The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limit specified for such materials in Table II of appendix B to 10 CFR part 20.
1910.1096(l)(2)—Twenty-four hour notification. Each employer shall within 24 hours following its occurrence notify the Assistant Secretary of Labor or his duly authorized representative for employees not protected by the Nuclear Regulatory Commission by means of 10 CFR part 20; paragraph (p)(2) [Nuclear Regulatory Commission Licenses] of this section, or the requirements of the laws and applicable regulations of States named in paragraph (p)(3) [Nuclear Regulatory Commission Licenses] of this section, by telephone or telegraph of any incident involving radiation which may have caused or threatens to cause:

1910.1096(l)(2)(i)—Exposure of the whole body of any individual to 5 rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 rems or more of radiation.

1910.1096(m)(1)—In addition to any notification required by paragraph (l) of this section each employer shall make a report in writing within 30 days to the Assistant Secretary of Labor or his duly authorized representative, for employees not protected by the Nuclear Regulatory Commission by means of 10 CFR part 20; or under paragraph (p)(2) [Nuclear Regulatory Commission Licenses] of this section, or the requirements of the laws and regulations of States named in paragraph (p)(3) [Nuclear Regulatory Commission Licenses] of this section, of each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit in this section. Each report required under this paragraph shall describe the extent of exposure of persons to radiation or to radioactive material; levels of radiation and concentration of radioactive material involved, the cause of the exposure, levels of concentrations; and corrective steps taken or planned to assure against a recurrence.

1910.1096(m)(2)—In any case where an employer is required pursuant to the provisions of this paragraph to report to the U.S. Department of Labor any exposure of an individual to radiation or to concentrations of radioactive material, the employer shall also notify such individual of the nature and extent of exposure. Such notice shall be in writing and shall contain the following statement: “You should preserve this report for future reference.”

1910.1096(o)(1)—At the request of a former employee, an employer shall furnish to the employee a report of the employee’s exposure to radiation as shown in records maintain by the employer pursuant to paragraph (n)(1) [Records] of this section. Such report shall be furnished within 30 days from the time the request is made, and shall cover each calendar quarter of the individual’s employment involving exposure to radiation or such lesser period as may be requested by the employee. The report shall also include the results of any calculations and analysis of radioactive material deposited in the body of the employee. The report shall be in writing and contain the following statement: “You should preserve this report for future reference.”

Signs, Markings and Tags

1910.1096(e)(2)—Radiation area. Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol described in subparagraph (1) of this paragraph.

1910.1096(e)(3)(i)—Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol.

1926.54—NONIONIZING RADIATION

Scope/Application: This section applies to occupational exposure to nonionizing radiation.

STANDARD HIGHLIGHTS

• Recordkeeping—proof of qualifications
• Training and Communications—qualified and trained person
• Qualified Person—trained
• Signs, Markings and Tags—posting placards, labeling
Recordkeeping

1926.54(b)—*Proof of qualification* of the laser equipment operator shall be available and in possession of the operator at all times.

Training and Communications

1926.54(a)—*Only qualified and trained employees shall be assigned* to install, adjust, and operate laser equipment.

Qualified Person

1926.54(a)—*Only qualified and trained employees shall be assigned* to install, adjust, and operate laser equipment.

Signs, Markings and Tags

1926.54(d)—*Areas in which lasers are used shall be posted* with standard laser *warning placards.*

1926.54(i)—*Laser equipment shall bear a label* to indicate maximum output.

1926.55—GASES, VAPORS, FUMES, DUSTS AND MISTS

*Scope/Application:* This section applies employees to exposure to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the “Threshold Limit Values of Airborne Contaminants for 1970” of the American Conference of Governmental Industrial Hygienists, shall be avoided. See Appendix A [Gases, Vapors, Fumes, Dusts, and Mists] to this section.

*Exception:* Paragraphs (a) and (b) of this section do not apply to the exposure of employees to airborne asbestos, tremolite, anthophyllite, or actinolite dust. Whenever any employee is exposed to airborne asbestos, tremolite, anthophyllite, or actinolite dust, the requirements of §1910.1101 or §1926.58 of this title shall apply.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—administrative and engineering controls
- Competent Person—industrial hygienist
- Qualified Person—competent hygienist, qualified person

Programs, Policies, and Procedures

1926.55(b)—To achieve compliance with paragraph (a) [Gases, Vapors, Fumes, Dusts, and Mists] of this section, administrative or engineering controls must first be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or *other protective measures* shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and *technical measures* used for this purpose must first be approved for each particular use by a *competent industrial hygienist or other technically qualified person*. Whenever respirators are used, their use shall comply with Sec. 1926.103 [Respiratory Protection].

Competent Person

1926.55(b)—To achieve compliance with paragraph (a) [Gases, Vapors, Fumes, Dusts, and Mists] of this section, administrative or engineering controls must first be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or *other protective measures* shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and *technical measures* used for this purpose must first be approved for each particular use by a *competent industrial hygienist or other technically qualified person*. Whenever respirators are used, their use shall comply with Sec. 1926.103 [Respiratory Protection].
Qualified Person

1926.55(b)—To achieve compliance with paragraph (a) [Gases, Vapors, Fumes, Dusts, and Mists] of this section, administrative or engineering controls must first be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and technical measures used for this purpose must first be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with Sec. 1926.103 [Respiratory Protection].

1926.57—VENTILATION

Scope/Application: Whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist or are produced in the course of construction work, their concentrations shall not exceed the limits specified in Sec. 1926.55(A) [Gases, Vapors, Fumes, Dusts and Mists]. When ventilation is used as an engineering control method, the system shall be installed and operated according to the requirements of this section.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—respirator program
- Inspections and Tests—regular inspections, records
- Recordkeeping—hood static pressure records
- Training and Communications—standby trained person
- Qualified Person—industrial hygienist

Programs, Policies, and Procedures

1926.57(f)(5)(iv)—A respiratory protection program as defined and described in Sec. 1926.103 [Respiratory Protection], shall be established wherever it is necessary to use respiratory protective equipment.

Inspections and Tests

1926.57(f)(3)(i)(E)—Slit abrasive-resistant baffles shall be installed in multiple sets at all small access openings where dust might escape, and shall be inspected regularly and replaced when needed.

1926.57(i)(8)(i)—The required airflow shall be maintained at all times during which gas, mist, or vapor is emitted from the tank, and at all times the tank, the draining, or the drying area is in operation or use. When the system is first installed, the airflow from each hood shall be measured by means of a pitot traverse in the exhaust duct and corrective action taken if the flow is less than that required. When the proper flow is obtained, the hood static pressure shall be measured and recorded. At intervals of not more than 3 months operation, or after a prolonged shutdown period, the hoods and duct system shall be inspected for evidence or corrosion or damage. In any case where the airflow is found to be less than required, it shall be increased to the required value. (Information on airflow and static pressure measurement and calculations may be found in American National Standard Fundamental Governing the Design and Operation of Local Exhaust Systems, Z9.2-1960, or in the manual, Industrial Ventilation, published by the American Conference of Governmental Industrial Hygienists.)

Recordkeeping

1926.57(i)(8)(i)—The required airflow shall be maintained at all times during which gas, mist, or vapor is emitted from the tank, and at all times the tank, the draining, or the drying area is in operation or use. When the system is first installed, the airflow from each hood shall be measured by means of a pitot traverse in the exhaust duct and corrective action taken if the flow is less than that required. When the proper flow is obtained, the hood static pressure shall be measured and recorded. At intervals of not more than 3 months operation, or after a prolonged shutdown period, the hoods and duct system shall be inspected for evidence or corrosion or damage. In any case where the airflow is found to be less than required, it shall be increased to the required value. (Information on airflow and static pressure measurement and calculations
Training and Communications

1926.57(i)(11)(v)—If, in emergencies, such as rescue work, it is necessary to enter a tank which may contain a hazardous atmosphere, suitable respirators, such as self-contained breathing apparatus; hose mask with blower, if there is a possibility of oxygen deficiency; or a gas mask, selected and operated in accordance with paragraph (i)(9)(vi) of this section, shall be used. If a contaminant in the tank can cause dermatitis, or be absorbed through the skin, the employee entering the tank shall wear protective clothing. At least one trained standby employee, with suitable respirator, shall be present in the nearest uncontaminated area. The standby employee must be able to communicate with the employee in the tank and be able to haul him out of the tank with a lifeline if necessary.

1926.57(i)(9)(i)—All employees working in and around open-surface tank operations must be instructed as to the hazards of their respective jobs, and in the personal protection and first aid procedures applicable to these hazards.

Qualified Person

1926.57(i)(9)(vi)—When, during the emergencies specified in paragraph (i)(11)(v) of this section, employees must be in areas where concentrations of air contaminants are greater than the limits set by paragraph (i)(2)(iii) of this section or oxygen concentrations are less than 19.5 percent, they must use respirators that reduce their exposure to a level below these limits or that provide adequate oxygen. Such respirators must also be provided in marked, quickly-accessible storage compartments built for this purpose when the possibility exists of accidental release of hazardous concentrations of air contaminants. Respirators must be approved by NIOSH under 42 CFR part 84, selected by a competent industrial hygienist or other technically-qualified source, and used in accordance with 29 CFR 1926.103 (Respiratory Protection).

1926.59—HAZARD COMMUNICATION

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1200 [Hazard Communication] of this chapter.

1910.1200—HAZARD COMMUNICATION

Scope/Application: This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—written hazard communication program on site
• Recordkeeping—SDS readily available, update in 3 months
• Training and Communications—initial training
• Qualified Person—physician
• Signs, Markings and Tags—chemicals labeled, written materials, update in 3 months

Programs, Policies and Procedures

1910.1200(e)(1)—Employers shall develop, implement, and maintained at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met. [Reference paragraph (e) for specific information.]

1910.1200(e)(5)—Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.
1910.1200(g)(2)—The chemical manufacturer or importer preparing the safety data sheet shall ensure that it is in English (although the employer may maintain copies in other languages as well), and includes at least the following section numbers and headings, and associated information under each heading, in the order listed (See Appendix D to §1910.1200—Safety Data Sheets, for the specific content of each section of the safety data sheet).

1910.1200(g)(3)—If no relevant information is found for any sub-heading within a section on the safety data sheet, the chemical manufacturer, importer or employer preparing the safety data sheet shall mark it to indicate that no applicable information was found.

1910.1200(g)(4)—Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one safety data sheet to apply to all of these similar mixtures.

1910.1200(g)(5)—The chemical manufacturer, importer or employer preparing the safety data sheet shall ensure that the information provided accurately reflects the scientific evidence used in making the hazard classification. If the chemical manufacturer, importer or employer preparing the safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the safety data sheet before the chemical is introduced into the workplace again.

1910.1200(g)(6)(i)—Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate safety data sheet with their initial shipment, and with the first shipment after a safety data sheet is updated.

1910.1200(g)(6)(iii)—If the safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributor or employer shall obtain one from the chemical manufacturer or importer as soon as possible.

1910.1200(g)(10)—Safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

Recordkeeping

1910.1200(e)(1)—Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met. [Reference paragraph (e) for specific information.]

1910.1200(e)(5)—Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.

1910.1200(f)(7)—The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(6) [Workplace Labeling] of this section to be on a label. The employer shall ensure the written materials are readily accessible to the employees in their work area throughout each work shift.

1910.1200(g)(3)—If no relevant information is found for any sub-heading within a section on the safety data sheet, the chemical manufacturer, importer or employer preparing the safety data sheet shall mark it to indicate that no applicable information was found.
1910.1200(g)(5)—The chemical manufacturer, importer or employer preparing the safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the safety data sheet before the chemical is introduced into the workplace again.

1910.1200(g)(8)—The employer shall maintain in the workplace copies of the required safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

1910.1200(g)(9)—Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

1910.1200(g)(11)—Safety data sheets shall also be made readily available, upon request, to designated representatives, the Assistant Secretary, and the Director, in accordance with the requirements of Sec. 1910.1020(e) [Access to Records].

1910.1200(i)(2)—Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity and/or specific percentage of composition of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity or percentage composition of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) [Trade Secrets] of this section, as soon as circumstances permit.

1910.1200(i)(3)(iii)(v)—The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) [Trade Secrets] of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

1910.1200(i)(8)—The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) [Trade Secrets] of this section may refer the request and the written denial of the request to OSHA for consideration.

1910.1200(i)(9)—When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) [Trade Secrets] of this section, OSHA shall consider the evidence.

Training and Communications

1910.1200(f)(7)—The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(6) [Workplace Labeling] of this section to be on a label. The employer shall ensure that such written materials are readily accessible to the employees in their work area throughout each work shift.

Qualified Person

1910.1200(i)(2)—Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity and/or specific percentage of composition of a hazardous chemical is necessary for emergency or
first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity or percentage composition of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) [Trade Secrets] of this section, as soon as circumstances permit.

1910.1200(i)(3)(iii)(v)—The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) [Trade Secrets] of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

1910.1200(i)(8)—The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) [Trade Secrets] of this section may refer the request and the written denial of the request to OSHA for consideration.

1910.1200(i)(9)—When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) [Trade Secrets] of this section, OSHA shall consider the evidence.

Signs, Markings and Tags

1910.1200(f)(5)—Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) and regulations issued under that Act by the Department of Transportation.

1910.1200(f)(6)—Workplace labeling. Except as provided in paragraphs (f)(7) and (f)(8) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked.

1910.1200(f)(7)—The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(6) [Workplace Labeling] of this section to be on a label. The employer shall ensure the written materials are readily accessible to the employees in their work area throughout each work shift.

1910.1200(f)(9)—The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

1910.1200(f)(10)—The employer shall ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

1910.1200(f)(11)—Chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical shall revise the labels for the chemical within six months of becoming aware of the new information, and shall ensure that labels on containers of hazardous chemicals shipped after that time contain the new information. If the chemical is not currently produced or imported, the chemical manufacturer, importer, distributor, or employer shall add the information to the label before the chemical is shipped or introduced into the workplace again.

1910.1200(g)(3)—If no relevant information is found for any sub-heading within a section on the safety data sheet, the chemical manufacturer, importer or employer preparing the safety data sheet shall mark it to indicate that no applicable information was found.
1910.1200(g)(6)(ii)—The chemical manufacturer or importer shall either provide safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment.

1910.1200(g)(6)(iii)—If the safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributor or employer shall obtain one from the chemical manufacturer or importer as soon as possible.

1910.1200(g)(6)(iv)—The chemical manufacturer or importer shall also provide distributors or employers with a safety data sheet upon request.

1910.1200(g)(7)(i)—Distributors shall ensure that safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a safety data sheet is updated.

1910.1200(g)(7)(ii)—The distributor shall either provide safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment.

1910.1200(g)(7)(iii)—Retail distributors selling hazardous chemicals to employers having a commercial account shall provide a safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a safety data sheet is available.

1910.1200(g)(7)(iv)—Wholesale distributors selling hazardous chemicals to employers over-the-counter may also provide safety data sheets upon the request of the employer at the time of the over-the-counter purchase, and shall post a sign or otherwise inform such employers that a safety data sheet is available.

1910.1200(g)(7)(v)—If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have safety data sheets on file (i.e., the retail distributor does not have commercial accounts and does not use the materials), the retail distributor shall provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a safety data sheet can be obtained.

1910.1200(g)(7)(vi)—Wholesale distributors shall also provide safety data sheets to employers or other distributors upon request.

1910.1200(g)(7)(vii)—Chemical manufacturers, importers, and distributors need not provide safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.

1910.1200(g)(9)—Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

1910.1200(g)(10)—Safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

1910.1200(h)(1)—Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets. [Reference paragraph (h) for specific information.]

1910.1200(i)(2)—Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity and/or specific percentage of composition of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity
or percentage composition of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i) (3) and (4) [Trade Secrets] of this section, as soon as circumstances permit.

1910.1200(i)(3)—In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, or percentage composition otherwise permitted to be withheld under paragraph (i) (1) [Trade Secrets] of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

1910.1200(i)(3)(i)—The request is in writing.

1910.1200(i)(3)(iii)(v)—The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) [Trade Secrets] of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

1910.1200(i)(7)—If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity or percentage composition, the denial must:

1910.1200(i)(7)(i)—Be provided to the health professional, employee, or designated representative, within thirty days of the request.

1910.1200(i)(7)(ii)—Be in writing.

1910.1200(i)(8)—The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) [Trade Secrets] of this section may refer the request and the written denial of the request to OSHA for consideration.

1910.1200(i)(9)—When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) [Trade Secrets] of this section, OSHA shall consider the evidence.

1910.1200(i)(12)—Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

1926.60—METHYLENEDIANILINE

Scope/Application: This section applies to all construction work as defined in 29 CFR 1910.12(b) [Construction Work], in which there is exposure to MDA, including but not limited to the following: Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain MDA; Installation or the finishing of surfaces with products containing MDA; MDA spill/emergency cleanup at construction sites; and Transportation, disposal, storage, or containment of MDA or products containing MDA on the site or location at which construction activities are performed.

Exception: Except as provided in paragraphs (a)(7) [Scope] and (f)(5) [Additional Monitoring] of this section, this section does not apply to the processing, use, and handling of products containing MDA where initial monitoring indicates that the product is not capable of releasing MDA in excess of the action level under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no “dermal exposure to MDA” can occur: Except as provided in paragraphs (a)(7) [Scope] of this section, this section does not apply to the processing, use, and handling
of products containing MDA where objective data are reasonably relied upon which demonstrate the product is not capable
of releasing MDA under the expected conditions of processing, use, and handling which will cause the greatest possible
release; and where no “dermal exposure to MDA” can occur. Except as provided in paragraphs (a)(7) [Scope] of this
section, this section does not apply to the storage, transportation, distribution or sale of MDA in intact containers sealed
in such a manner as to contain the MDA dusts, vapors, or liquids, except for the provisions of 29 CFR 1910.1200 [Hazard
Communication] and paragraph (e) of this section. Except as provided in paragraphs (a)(7) [Scope] of this section, this
section does not apply to materials in any form which contain less than 0.1 percent MDA by weight or volume. Except as
provided in paragraphs (a)(7) [Scope] of this section, this section does not apply to “finished articles containing MDA.”

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—emergency plan, fire prevention plan, compliance program, respirator
  program, housekeeping program, medical surveillance program, hazard communication program
- Inspections and Tests—visual examinations of clothing, regular inspections
- Recordkeeping—retention requirements, records, safety data sheets
- Training and Communications—contractors, launderers, hazard communication
- Exposure Monitoring—documentation, initial, three months, and six months
- Medical Surveillance—initial and annual, written opinions
- Qualified Person—physician
- Signs, Markings and Tags—regulated areas, posting, labels, warnings

Programs, Policies and Procedures

1926.60(e)(1)(i)—A written plan for emergency situations shall be developed for each construction operation
where there is a possibility of an emergency. The plan shall include procedures where the employer identifies emergency
escape routes for his employees at each construction site before the construction operation begins. Appropriate portions
of the plan shall be implemented in the event of an emergency.

1926.60(e)(1)(iii)—The plan shall specifically include provisions for alerting and evacuating affected employees as well
prevention plans,” respectively.

1926.60(e)(2)—Alerting employees. Where there is the possibility of employee exposure to MDA due to an emergency,
means shall be developed to promptly alert employees who have the potential to be directly exposed. Affected employees
not engaged in correcting emergency conditions shall be evacuated immediately in the event that an emergency occurs.
Means shall also be developed for alerting other employees who may be exposed as a result of the emergency.

1926.60(h)(1)(i)—The employer shall use one or any combination of the following control methods to achieve compliance
with the permissible exposure limits prescribed by paragraph (c) [Permissible Exposure Limits] of this section:

1926.60(h)(1)(i)(C)—Use of work practices.

1926.60(h)(1)(i)(D)—Other engineering controls such as isolation and enclosure that the Assistant Secretary can
show to be feasible.

1926.60(h)(5)(i)—The employer shall establish and implement a written program to reduce employee exposure to or
below the PELs by means of engineering and work practice controls, as required by paragraph (h)(1) [Engineering
Controls and Work Practices and Respirators] of this section, and by use of respiratory protection where permitted
under this section.

1926.60(h)(5)(ii)—Upon request this written program shall be furnished for examination and copying to the Assistant
Secretary, the Director, affected employees and designated employee representatives. The employer shall review and, as
necessary, update such plans at least once every 12 months to make certain they reflect the current status of the program.

1926.60(i)(2)—Respirator program. The employer must implement a respiratory protection program in accordance
with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

1926.60(l)(1)—Hazard communication. The employer shall include Methyleneedianiline (MDA) in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of MDA and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l)(3) [Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; liver effects; and skin sensitization.

1926.60(m)(2)—The employer shall institute a program for detecting MDA leaks, spills, and discharges, including regular visual inspections of operations involving liquid or solid MDA.

1926.60(n)(1)(i)—The employer shall make available a medical surveillance program for employees exposed to MDA under certain circumstances. [Reference paragraph (n)(1)(i) for specific circumstances.]

Inspections and Tests

1926.60(f)(8)—Visual monitoring. The employer shall make routine inspections of employee hands, face and forearms potentially exposed to MDA. Other potential dermal exposures reported by the employee must be referred to the appropriate medical personnel for observation. [Reference paragraph (f)(8) for corrective action.]

1926.60(f)(8)(iii)—Maintain records of the corrective actions in accordance with paragraph (o) [Recordkeeping] of this section.

1926.60(j)(2)(v)—Containers of MDA-contaminated protective work clothing or equipment which are to be taken out of decontamination areas or the workplace for cleaning, maintenance, or disposal, shall bear labels warning of the hazards of MDA.

1926.60(j)(4)(i)—The employer shall ensure that employees’ work clothing is examined periodically for rips or tears that may occur during performance of work.

1926.60(m)(2)—The employer shall institute a program for detecting MDA leaks, spills, and discharges, including regular visual inspections of operations involving liquid or solid MDA.

Recordkeeping

1926.60(a)(7)—Where products containing MDA are exempted under paragraphs (a)(2) through (a)(6) [Scope and Application] of this section, the employer shall maintain records of the initial monitoring results or objective data supporting that exemption and the basis for the employer’s reliance on the data, as provided in the recordkeeping provision of paragraph (o) [Recordkeeping] of this section.

1926.60(f)(1)(iii)—Where the employer can document that exposure levels are equivalent for similar operations in different work shifts, the employer shall only be required to determine representative employee exposure for that operation during one shift.

1926.60(f)(2)(i)—Where the employer can demonstrate, on the basis of objective data, that the MDA-containing product or material being handled cannot cause exposures above the standard’s action level, even under worst-case release conditions.

1926.60(f)(2)(ii)—The employer has historical monitoring or other data demonstrating that exposures on a particular job will be below the action level.

1926.60(f)(7)(i)—The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. [Reference paragraph (f)
(7)(i) for corrective action requirements.]

1926.60(f)(8)(iii)—Maintain records of the corrective actions in accordance with paragraph (o) [Recordkeeping] of this section.

1926.60(h)(5)(i)—The employer shall establish and implement a written program to reduce employee exposure to or below the PELs by means of engineering and work practice controls, as required by paragraph (h)(1) [Engineering Controls and Work Practices and Respirators] of this section, and by use of respiratory protection where permitted under this section.

1926.60(l)(1)—Hazard communication. The employer shall include Methyleneedianiline (MDA) in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of MDA and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l)(3) [Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; liver effects; and skin sensitization.

1926.60(l)(3)(ii)—In addition to the information required under 29 CFR 1910.1200 [Hazard Communication], the employer shall provide additional information pertaining to this section. [Reference paragraph (l)(3)(ii) for specific information.]

1926.60(l)(4)(i)—The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.

1926.60(l)(4)(ii)—The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

1926.60(n)(7)(i)—The employer shall provide information to the examining physician. [Reference paragraph (n)(7)(i) for specific information.]

1926.60(n)(7)(ii)—The employer shall provide the foregoing information to a second physician under this section upon request either by the second physician, or by the employee. [Reference paragraph (n)(7)(ii) for specific information.]

1926.60(n)(8)(i)—For each examination under this section, the employer shall obtain, and provide the employee with a copy of, the examining physician’s written opinion within 15 days of its receipt. The written opinion shall include specific information. [Reference paragraph (n)(8)(i) for specific information.]

1926.60(o)(1)(i)—Where the employer has relied on objective data that demonstrate that products made from or containing MDA are not capable of releasing MDA or do not present a dermal exposure problem under the expected conditions of processing, use, or handling to exempt such operations from the initial monitoring requirements under paragraph (f)(2) [Initial Monitoring] of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption. [Reference paragraph (o)(1)(i) for specific record information.]

1926.60(o)(1)(iii)—The employer shall maintain this record for the duration of the employer’s reliance upon such objective data.

1926.60(o)(2)(i)—Where the employer has relied on historical monitoring data that demonstrate that exposures on a particular job will be below the action level to exempt such operations from the initial monitoring requirements under paragraph (f)(2) [Initial Monitoring] of this section, the employer shall establish and maintain an accurate record of historical monitoring data reasonably relied upon in support of the exception. [Reference paragraph (o)(2)(ii) for specific record information.]

1926.60(o)(2)(iii)—The employer shall maintain this record for the duration of the employer’s reliance upon such historical monitoring data.
1926.60(o)(4)(i)—The employer shall keep an accurate record of all measurements taken to monitor employee exposure to MDA. [Reference paragraph (o)(4)(iii) for specific record information.]

1926.60(o)(4)(iii)—The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1926.33 [Access to Employee Exposure and Medical Records].

1926.60(o)(5)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (n)—Medical Surveillance of this section, in accordance with 29 CFR 1926.33 [Access to Employee Exposure and Medical Records]. [Reference paragraph (o)(5)(iii) for specific record information.]

1926.60(o)(5)(iii)—The employer shall ensure that this record is maintain for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1926.33 [Access to Employee Exposure and Medical Records].

1926.60(o)(6)—Training records. The employer shall maintain all employee training records for one (1) year beyond the last date of employment.

1926.60(o)(7)(i)—The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

1926.60(o)(7)(ii)—The employer, upon request, shall make any exposure records required by paragraphs (f) [Exposure Monitoring] and (n) [Medical Surveillance] of this section available for examination and copying to affected employees, former employees, designated representatives, and the Assistant Secretary, in accordance with 29 CFR 1926.33(a)(e) and (g)-(i) 29 CFR 1926.33 [Access to Employee Exposure and Medical Records].

1926.60(o)(7)(iii)—The employer, upon request, shall make employee medical records required by paragraphs (n) [Medical Surveillance] and (o) [Recordkeeping] of this section available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1926.33 [Access to Employee Exposure and Medical Records].

1926.60(o)(8)—Transfer of records. The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h) Access to Employee Exposure and Medical Records]

1926.60(o)(8)(ii)—Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal and, upon request, transmit them to the Director

Training and Communications

1926.60(d)—Communication among employers. On multi-employer worksites, an employer performing work involving the application of MDA or materials containing MDA for which establishment of one or more regulated areas is required shall inform other employers on the site of the nature of the employer’s work with MDA and of the existence of, and requirements pertaining to, regulated areas.

1926.60(j)(3)(iv)—Any employer who gives MDA-contaminated clothing to another person for laundering shall inform such person of the requirement to prevent the release of MDA.

1926.60(j)(3)(v)—The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with MDA of the potentially harmful effects of exposure.

1926.60(l)(1)—Hazard communication. The employer shall include Methylenedianiline (MDA) in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of MDA and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l)(3) [Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; liver effects; and skin sensitization.
The employer shall provide employees with information and training on MDA, in accordance with 29 CFR 1910.1200(h) [Employee Information and Training], at the time of initial assignment and at least annually thereafter.

In addition to the information required under 29 CFR 1910.1200 [Hazard Communication], the employer shall provide additional information pertaining to this section. [Reference paragraph (l)(3)(ii) for specific information.]

The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.

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

Exposure Monitoring

Where the employer can document that exposure levels are equivalent for similar operations in different work shifts, the employer shall only be required to determine representative employee exposure for that operation during one shift.

Initial monitoring. Each employer who has a workplace or work operation covered by this standard shall perform initial monitoring to determine accurately the airborne concentrations of MDA to which employees may be exposed unless:

Where the employer can demonstrate, on the basis of objective data, that the MDA-containing product or material being handled cannot cause exposures above the standard’s action level, even under worst-case release conditions; or

The employer has historical monitoring or other data demonstrating that exposures on a particular job will be below the action level.

If the monitoring required by paragraph (f)(2) [Initial Monitoring] of this section reveals employee exposure at or above the action level, but at or below the PELs, the employer shall repeat such monitoring for each such employee at least every six (6) months.

If the monitoring required by paragraph (f)(2) [Initial Monitoring] of this section reveals employee exposure above the PELs, the employer shall repeat such monitoring for each such employee at least every three (3) months.

The employer may alter the monitoring schedule from every three months to every six months for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee exposure has decreased to below the PELs but above the action level.

Additional monitoring. The employer shall institute the exposure monitoring required under paragraph (f)(2) [Initial Monitoring] and (f)(3) [Periodic Monitoring and Monitoring Frequency] of this section when there has been a change in production process, chemicals present, control equipment, personnel, or work practices which may result in new or additional exposures to MDA, or when the employer has any reason to suspect a change which may result in new or additional exposures.

The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. [Reference paragraph (f)(7)(i) for corrective action requirements.]

Medical Surveillance
1926.60(n)(1)(i)—The employer shall make available a medical surveillance program for employees exposed to MDA under certain circumstances. [Reference paragraph (n)(1)(i) for specific circumstances.]

1926.60(n)(2)(i)—Within 150 days of the effective date of this standard, or before the time of initial assignment, the employer shall provide each employee covered by paragraph (n)(1)(i) [Medical Surveillance] of this section with a medical examination including certain elements. [Reference paragraph (n)(2)(i) for specific information.]

1926.60(n)(2)(i)(D)—Additional tests as necessary in the opinion of the physician.

1926.60(n)(3)(i)—The employer shall provide each employee covered by this section with a medical examination at least annually following the initial examination. These periodic examinations shall include at least certain elements. [Reference paragraph (n)(3)(i) for specific elements.]

1926.60(n)(4)—Emergency examinations. If the employer determines that the employee has been exposed to a potentially hazardous amount of MDA in an emergency situation under paragraph (e) [Emergency Situations] of this section, the employer shall provide medical examinations in accordance with paragraph (n)(3)(i) and (ii) [Periodic Examinations] of this section. If the results of liver function testing indicate an abnormality, the employee shall be removed in accordance with paragraph (n)(9) [Medical Removal] of this section. Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the results of the second set of tests are normal and on the advice of the physician, no additional testing is required.

1926.60(n)(5)—Additional examinations. Where the employee develops signs and symptoms associated with exposure to MDA, the employer shall provide the employee with an additional medical examination including liver function tests. Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the results of the second set of tests are normal and on the advice of the physician, no additional testing is required.

1926.60(n)(6)(ii)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician’s written opinion.

1926.60(n)(7)(i)—The employer shall provide information to the examining physician. [Reference paragraph (n)(7)(i) for specific information.]

1926.60(n)(7)(ii)—The employer shall provide the foregoing information to a second physician under this section upon request either by the second physician, or by the employee. [Reference paragraph (n)(7)(ii) for specific information.]

1926.60(n)(8)(i)—For each examination under this section, the employer shall obtain, and provide the employee with a copy of, the examining physician’s written opinion within 15 days of its receipt. The written opinion shall include specific information. [Reference paragraph (n)(8)(i) for specific information.]

Qualified Person

1926.60(n)(7)(i)—The employer shall provide information to the examining physician. [Reference paragraph (n)(7)(i) for specific information.]

1926.60(n)(7)(ii)—The employer shall provide the foregoing information to a second physician under this section upon request either by the second physician, or by the employee. [Reference paragraph (n)(7)(ii) for specific information.]

1926.60(n)(8)(i)—For each examination under this section, the employer shall obtain, and provide the employee with a copy of, the examining physician’s written opinion within 15 days of its receipt. The written opinion shall include specific information. [Reference paragraph (n)(8)(i) for specific information.]
Signs, Markings and Tags

1926.60(g)(1)(i)—Airborne exposures. The employer shall establish regulated areas where airborne concentrations of MDA exceed or can reasonably be expected to exceed, the permissible exposure limits.

1926.60(g)(1)(ii)—Dermal exposures. Where employees are subject to “dermal exposure to MDA” the employer shall establish those work areas as regulated areas.

1926.60(g)(2)—Demarcation. Regulated areas shall be demarcated from the rest of the workplace in a manner that minimizes the number of persons potentially exposed.

1926.60(j)(2)(v)—Containers of MDA-contaminated protective work clothing or equipment which are to be taken out of decontamination areas or the workplace for cleaning, maintenance, or disposal, shall bear labels warning of the hazards of MDA.

1926.60(l)(1)—Hazard communication. The employer shall include Methyleneedianiline (MDA) in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of MDA and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l)(3) [Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; liver effects; and skin sensitization.

1926.60(l)(2)(i)(A)—The employer shall post and maintain legible signs demarcating regulated areas and entrances or access-ways to regulated areas that bear the following legend.

1926.60(l)(2)(ii)(A)—The employer shall ensure that labels or other appropriate forms of warning are provided for containers of MDA within the workplace.

1910.38—EMERGENCY ACTION PLAN

Scope/Application: An employer must have an emergency action plan whenever an OSHA standard in this part requires one. The requirements in this section apply to each such emergency action plan.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—written emergency action plan, plan review, educational program
- Recordkeeping—plan
- Training and Communications—initial and annual training

Programs, Policies, and Procedures

1910.38(b)—Written and oral emergency action plans. An emergency action plan must be in writing, kept in the workplace, and available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees. [Reference Paragraph (c) for the Minimum Elements of an Emergency Action Plan.]

1910.38(f)—Review of emergency action plan. An employer must review the emergency action plan with each employee covered by the plan.

1910.38(f)(1)—When the plan is developed or the employee is assigned initially to a job;

1910.38(f)(2)—When the employee’s responsibilities under the plan change; and

1910.38(f)(3)—When the plan is changed.
Recordkeeping

1910.38(b)—Written and oral emergency action plans. An emergency action plan must be in writing, kept in the workplace, and available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees. [Reference Paragraph (c) for the Minimum Elements of an Emergency Action Plan.]

Training and Communications

1910.38(e)—Training. An employer must designate and train employees to assist in a safe and orderly evacuation of other employees.

Note: The 1910.157(g)(1)-(4) standards apply when employees will be using fire extinguishers to extinguish fires as part of the employer's emergency action plan.

1910.157(g)(1)—Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

1910.157(g)(2)—The employer shall provide the education required in paragraph (g)(1) [Training and Education] of this section upon initial employment and at least annually thereafter.

1910.157(g)(3)—Portable Fire Extinguishers. The employer shall provide employees who have been designated to use fire fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.

1910.157(g)(4)—The employer shall provide the training required in paragraph 1910.157(g)(3) [Portable Fire Extinguishers], upon initial assignment to the designated group of employees and at least annually thereafter.

1910.39—FIRE PREVENTION PLAN

Scope/Application: An employer must have a fire prevention plan when an OSHA standard in this part requires one. The requirements in this section apply to each such fire prevention plan.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—written fire prevention plan
- Recordkeeping—plan
- Training and Communications—inform employees initially

Programs, Policies and Procedures

1910.39(b)—Written and oral fire prevention plans. A fire prevention plan must be in writing, be kept in the workplace, and be made available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees. [Reference paragraph (c) for specific minimum elements of a fire prevention plan.]

Recordkeeping

1910.39(b)—Written and oral fire prevention plans. A fire prevention plan must be in writing, be kept in the workplace, and be made available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees. [Reference paragraph (c) for specific minimum elements of a fire prevention plan.]

Training and Communications

1910.39(d)—Employee information. An employer must inform employees upon initial assignment to a job of the fire hazards to which they are exposed. An employer must also review with each employee those parts of the fire prevention plan necessary for self-protection.
Scope/Application: In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—respirator program, annual review, fit tests, worksite-specific procedures
- Inspections and Tests—inspections before use and monthly, evaluations
- Recordkeeping—retention requirements, records
- Certification—respirator inspections
- Training and Communications—initial and annual training, Appendix D
- Medical Surveillance—initial evaluation, recommendations, questionnaires
- Qualified Person—designated program administrator
- Signs, Markings and Tags—tags, labels, color-coding

Programs, Policies and Procedures

1910.134(c)—Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. [Reference paragraph (c)(1) for specific program elements.]

1910.134(c)(1)—In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use.

1910.134(c)(3)—The employer shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

1910.134(d)(3)(iii)(B)(2)—If there is no ESLI [end-of-service-life indicator] appropriate for conditions in the employer’s workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

1910.134(f)—Fit testing. This paragraph requires that, before an employee may be required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This paragraph specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.

1910.134(f)(2)—The employer shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.
1910.134(f)(3)—The employer shall conduct an additional fit test whenever the employee reports, or the employer, PLHCP [physician or other licensed health care professional], supervisor, or program administrator makes visual observations of, changes in the employee’s physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

Inspections and Tests

1910.134(h)(3)(i)—The employer shall ensure that respirators are inspected as follows:

1910.134(h)(3)(i)(A)—All respirators used in routine situations shall be inspected before each use and during cleaning;

1910.134(h)(3)(i)(B)—All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer’s recommendations, and shall be checked for proper function before and after each use; and

1910.134(h)(3)(i)(C)—Emergency escape-only respirators shall be inspected before being carried into the workplace for use.

1910.134(h)(3)(iii)—In addition to the requirements of paragraphs (h)(3)(i) and (ii) [Inspection] of this section, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer’s recommended pressure level. The employer shall determine that the regulator and warning devices function properly.

1910.134(l)(1)—The employer shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

Recordkeeping

1910.134(c)—Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. [Reference paragraph (c)(1) for specific program elements.]

1910.134(d)(3)(iii)(B)(2)—If there is no ESLI [end-of-service-life indicator] appropriate for conditions in the employer’s workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

1910.134(e)(5)(i)—Information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee’s ability to use a respirator. [Reference paragraph (e)(5)(i) for information to be provide to the physician.]

1910.134(e)(6)(i)—Obtain a written recommendation regarding the employee’s ability to use the respirator from the PLHCP. [Reference paragraph (e)(6)(i) for specific information.]

1910.134(h)(3)(i)(B)—All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer’s recommendations, and shall be checked for proper function before and after each use.

1910.134(h)(3)(iv)(A)—Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator.
1910.134(h)(3)(iv)(B)—Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

1910.134(m)—Recordkeeping. This section requires the employer to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist the employer in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA. [Reference paragraph (m) for specific record and record retention information.]

1910.134(m)(1)—Medical evaluation. Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.134(m)(2)(i)—The employer shall establish a record of the qualitative and quantitative fit tests administered to an employee.

1910.134(m)(2)(ii)—Fit test records shall be retained for respirator users until the next fit test is administered.

1910.134(m)(3)—A written copy of the current respirator program shall be retained by the employer.

Certification

1910.134(h)(3)(iv)—For respirators maintained for emergency use, the employer shall:

1910.134(h)(3)(iv)(A)—Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator.

1910.134(h)(3)(iv)(B)—Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

Training and Communications

1910.134(c)—Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. [Reference paragraph (c)(1) for specific program elements.]

1910.134(k)—Training and information. This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually, and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D [Information for Employees Using Respirators When Not Required Under Standard] of this section to employees who wear respirators when not required by this section or by the employer to do so. [Reference paragraph (k)(1) for specific training information.]

1910.134(k)(5)—Retraining shall be administered annually, and when the following situations occur:

1910.134(k)(5)(i)—Changes in the workplace or the type of respirator render previous training obsolete.

1910.134(k)(5)(ii)—Inadequacies in the employee’s knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.

1910.134(k)(5)(iii)—Any other situation arises in which retraining appears necessary to ensure safe respirator use.
1910.134(k)(6)—The basic advisory information on respirators, as presented in Appendix D—Information for Employees Using Respirators When Not Required Under Standard of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

Qualified Person

1910.134(c)(3)—The employer shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

1910.134(e)(5)(i)—Information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee’s ability to use a respirator. [Reference paragraph (e)(5)(i) for information to be provide to the physician.]

1910.134(e)(6)(i)—Obtain a written recommendation regarding the employee’s ability to use the respirator from the PLHCP.

Medical Surveillance

1910.134(e)(1)—General. The employer shall provide a medical evaluation to determine the employee’s ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee’s medical evaluations when the employee is no longer required to use a respirator.

1910.134(e)(3)(i)—The employer shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C [OSHA Respirator Medical Evaluation Questionnaire] or whose initial medical examination demonstrates the need for a follow-up medical examination.

1910.134(e)(5)(i)—Information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee’s ability to use a respirator. [Reference paragraph (e)(5)(i) for information to be provide to the physician.]

1910.134(e)(6)(i)—Obtain a written recommendation regarding the employee’s ability to use the respirator from the PLHCP. [Reference paragraph (e)(6)(i) for specific information.]

Signs, Markings and Tags

1910.134(h)(3)(iv)(B)—Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

1910.134(i)(5)(iv)—Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

1910.134(j)—Identification of filters, cartridges, and canisters. The employer shall ensure that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.
1926.61—RETENTION OF DOT MARKINGS, PLACARDS AND LABELS

**Scope/Application:** The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1201 [Retention of DOT Markings, Placards and Labels] of this chapter.

1910.1201—RETENTION OF DOT MARKINGS, PLACARDS AND LABELS

**Scope/Application:** This section applies to DOT markings, placards and labels.

**STANDARD HIGHLIGHTS**
- Signs, Markings and Tags—labeling, marking, placarding

**Signs, Markings and Tags**

1910.1201(c)—*Markings, placards and labels shall be maintained* in a manner that ensures that they are readily visible.

1910.1201(d)—For non-bulk packages which will not be reshipped, the provisions of this section are met if a *label* or other acceptable *marking is affixed* in accordance with the Hazard Communication Standard (29 CFR 1910.1200).

1926.62—LEAD

**Scope/Application:** This section applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from coverage in the general industry standard for lead by 29 CFR 1910.1025(a)(2) [Lead] is covered by this standard. Construction work is defined as work for construction, alteration and/or repair, including painting and decorating. It includes but is not limited to the following: Demolition or salvage of structures where lead or materials containing lead are present; Removal or encapsulation of materials containing lead; New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead; Installation of products containing lead; Lead contamination/emergency cleanup; Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed, and Maintenance operations associated with the construction activities described in this paragraph.

**STANDARD HIGHLIGHTS**
- Programs, Policies and Procedures—compliance program, respirator program, medical surveillance program, training program, work controls, hazard communication program
- Inspections and Tests—frequent and regular inspections, mechanical ventilation evaluations
- Recordkeeping—retention requirements, records, safety data sheets
- Training and Communications—written program, inform launderer in writing, instruct physician, hazard communication
- Exposure Monitoring—initially, quarterly, and semi-annually monitoring, exposure assessment
- Medical Surveillance—program, biological monitoring, respirator use, written opinions
- Competent Person—inspections
- Qualified Person—physician
- Signs, Markings and Tags—labels, warning signs

**Programs, Policies and Procedures**

1926.62(e)(1)—*Engineering and work practice controls.* The employer shall implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead to or below the permissible exposure limit to the extent that such controls are feasible. Wherever all feasible engineering and work practices controls that can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit prescribed in paragraph (c) [Permissible Exposure Limit] of this section, the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) [Respiratory Protection] of this section.
Prior to commencement of the job each employer shall establish and implement a written compliance program to achieve compliance with paragraph (c) [Permissible Exposure Limit] of this section. [Reference paragraph (e)(2)(ii) for specific information.]

Written programs shall be submitted upon request to any affected employee or authorized employee representatives, to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary and the Director.

Written programs must be revised and updated at least annually to reflect the current status of the program.

Administrative controls. If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule. [Reference paragraph (e)(4) for specific information.]

The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m) [Respiratory Protection], which covers each employee required by this section to use a respirator.

If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with paragraph (j)(3)(i)(B) [Medical Examinations and Consultations] of this section to determine whether or not the employee can use a respirator while performing the required duty.

The employer shall institute a medical surveillance program in accordance with paragraphs (j)(2) [Biological Monitoring] and (j)(3) [Medical Examinations and Consultations] of this section for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months.

Hazard communication. The employer shall include lead in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of lead and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l) of this section. The employer shall ensure that the hazards are addressed. [Reference paragraph (l)(1)(i) for further information.]

The employer shall provide the training program as initial training prior to the time of job assignment or prior to the start up date for this requirement, whichever comes last.

The employer shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.

Inspections and Tests

The compliance program shall provide for frequent and regular inspections of job sites, materials, and equipment to be made by a competent person.

Mechanical ventilation. When ventilation is used to control lead exposure, the employer shall evaluate the mechanical performance of the system in controlling exposure as necessary to maintain its effectiveness.

The employer shall ensure that signs required by this paragraph (m) [Signs] are illuminated and cleaned as necessary so that the legend is readily visible.

Recordkeeping

In addition, with regard to tasks not listed in paragraph (d)(2)(i) [Exposure Assessment], where the employer has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by paragraph (d) [Exposure Assessment] of this section and documents that the employee’s lead exposure is not above the PEL the employer shall treat the employee as
if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section.

1926.62(d)(2)(iii)—With respect to the tasks listed in this paragraph (d)(2)(iii) [Exposure Assessment] of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) [Exposure Assessment] of this section, and documents that the employee performing any of the listed tasks is not exposed in excess of 500 μg/m³, the employer shall treat the employee as if the employee were exposed to lead in excess of 500 μg/m³ and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section. Where the employer does establish that the employee is exposed to levels of lead below 500 μg/m³, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with Table 1 of this section. [Reference paragraph (d)(2)(iii) for specific tasks.]

1926.62(d)(2)(iv)—With respect to the tasks listed in this paragraph (d)(2)(iv) [Exposure Assessment] of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) [Exposure Assessment] of this section and documents that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 μg/m³ (50xPEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 μg/m³ and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section. Where the employer does establish that the employee is exposed to levels of lead below 2,500 μg/m³, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with Table 1 of this section. Interim protection as described in this paragraph is required where lead containing coatings or paint are present on structures. [Reference paragraph (d)(2)(iv) for specific tasks.]

1926.62(d)(3)(iv)—Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the action level during processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

1926.62(d)(3)(iv)(A)—The employer shall establish and maintain an accurate record documenting the nature and relevancy of objective data as specified in paragraph (n)(4) [Objective Data for Exemption From Requirement for Initial Monitoring] of this section, where used in assessing employee exposure in lieu of exposure monitoring.

1926.62(d)(5)—Negative initial determination. Where a determination, conducted under paragraphs (d)(1), (2), and (3) [Exposure Assessment] of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level the employer shall make a written record of such determination. The record shall include at least the information specified in paragraph (d)(3)(i) [Exposure Assessment] of this section and shall also include the date of determination, location within the worksite, and the name and social security number of each employee monitored.

1926.62(d)(8)(ii)—Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL the employer shall include in the written notice a statement that the employee exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

1926.62(e)(2)(iv)—Written programs shall be submitted upon request to any affected employee or authorized employee representatives, to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary and the Director.

1926.62(g)(2)(vi)—The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

1926.62(l)(1)(i)—Hazard communication. The employer shall include lead in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of lead and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l) of this section. The employer shall ensure that the hazards are addressed. [Reference paragraph (l)(1)(i) for further information.]
1926.62(l)(3)(i)—The employer shall make readily available to all affected employees a copy of this standard and its appendices.

1926.62(l)(3)(ii)—The employer shall provide, upon request, all materials relating to the employee information and training program to affected employees and their designated representatives, and to the Assistant Secretary and the Director.

1926.62(n)(1)(i)—The employer shall establish and maintain an accurate record of all monitoring and other data used in conducting employee exposure assessments as required in paragraph (d) [Exposure Assessment] of this section. [Reference paragraph (n)(1)(ii) for specific record information.]

1926.62(n)(1)(iii)—The employer shall maintain monitoring and other exposure assessment records in accordance with the provisions of 29 CFR 1926.33 [Access to Employee Exposure and Medical Records].

1926.62(n)(2)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (j) [Medical Surveillance] of this section. [Reference paragraph (n)(2)(ii) for specific record information.]

1926.62(n)(2)(iv)—The employer shall maintain or assure that the physician maintains medical records in accordance with the provisions of 29 CFR 1926.33 [Access to Employee Exposure and Medical Records].

1926.62(n)(3)(i)—The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to paragraph (k) [Medical Removal Protection] of this section. [Reference paragraph (n)(3)(i) for specific record information.]

1926.62(n)(3)(iii)—The employer shall maintain each medical removal record for at least the duration of an employee’s employment.

1926.62(n)(4)(ii)—The employer shall maintain the record of the objective data relied upon for at least 30 years.

1926.62(n)(6)(i)—Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by paragraph (n) [Recordkeeping] of this section.

1926.62(n)(6)(ii)—The employer shall also comply with any additional requirements involving the transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

1926.62(g)(2)(vi)—The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

1926.62(g)(2)(vii)(B)—Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment required by paragraph (g)(2)(v) in lieu of the labeling requirements in paragraph (g)(2)(vii)(A) of this section:

Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.

1926.62(j)(3)(v)(B)—The employer shall instruct each examining and consulting physician. [Reference paragraph (j) (3)(vi) for specific information.]

1926.62(l)(1)(i)—Hazard communication. The employer shall include lead in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of lead and safety data sheets, and is trained in accordance with the provisions of HCS and
paragraph (l) of this section. The employer shall ensure that the hazards are addressed. [Reference paragraph (l)(1)(i) for further information.]

1926.62(l)(1)(ii)—The employer **shall train each employee** who is subject to exposure to lead at or above the action level on any day, or who is subject to exposure to lead compounds which may cause skin or eye irritation (e.g., lead arsenate, lead azide), in accordance with the requirements of this section. The employer shall institute a **training program** and ensure employee participation in the program.

1926.62(l)(1)(iii)—The employer **shall provide the training program** as initial training prior to the time of job assignment or prior to the start up date for this requirement, whichever comes last.

1926.62(l)(1)(iv)—The employer **shall also provide the training program** at least annually for each employee who is subject to lead exposure at or above the action level on any day.

1926.62(l)(2)—**Training program.** The employer **shall assure that each employee is trained** in specific information. [Reference paragraph (l)(2) for specific information.]

**Exposure Monitoring**

1926.62(d)(1)(i)—Each employer who has a workplace or operation covered by this standard **shall initially determine if any employee may be exposed to lead** at or above the action level.

1926.62(d)(2)(i)—With respect to the lead related tasks listed in this paragraph (d)(2)(i) [Protection of Employees During Assessment of Exposure] of this section, where lead is present, **until the employer performs an employee exposure assessment** as required in paragraph (d) [Exposure Assessment] of this section and **documents** that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section. [Reference paragraph (d)(2)(i) for specific tasks.]

1926.62(d)(2)(ii)—In addition, with regard to tasks not listed in paragraph (d)(2)(i) [Exposure Assessment], where the employer has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, **until the employer performs an employee exposure assessment** as required by paragraph (d) [Exposure Assessment] of this section and **documents** that the employee’s lead exposure is not above the PEL the employer shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section.

1926.62(d)(2)(iii)—With respect to the tasks listed in this paragraph (d)(2)(iii) [Exposure Assessment] of this section, where lead is present, until the employer performs an **employee exposure assessment** as required in paragraph (d) [Exposure Assessment] of this section, and **documents** that the employee performing any of the listed tasks is not exposed in excess of 500 μg/m³, the employer shall treat the employee as if the employee were exposed to lead in excess of 500 μg/m³ and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section. Where the employer does establish that the employee is exposed to levels of lead below 500 μg/m³, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with Table 1 of this section. [Reference paragraph (d)(2)(iii) for specific tasks.]

1926.62(d)(2)(iv)—With respect to the tasks listed in this paragraph (d)(2)(iv) [Exposure Assessment] of this section, where lead is present, until the employer performs an **employee exposure assessment** as required in paragraph (d) [Exposure Assessment] of this section and **documents** that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 μg/m³ (50xPEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 μg/m³ and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) [Exposure Assessment] of this section. Where the employer does establish that the employee is exposed to levels of lead below 2,500 μg/m³, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with Table I of this section. Interim protection as described in this paragraph is required where lead containing coatings or paint are present on structures. [Reference paragraph (d)(2)(iv) for specific tasks.]
1926.62(d)(2)(v)—Until the employer performs an employee exposure assessment as required under paragraph (d) [Exposure Assessment] of this section and determines actual employee exposure, the employer shall provide to employees performing the tasks described in paragraphs (d)(2)(i), (d)(2)(ii), (d)(2)(iii) and (d)(2)(iv) [Protection of Employees During Assessment of Exposure] of this section with interim protection as follows:

1926.62(d)(2)(v)(E)—Biological monitoring in accordance with paragraph (j)(1)(i) [Medical Surveillance] of this section, to consist of blood sampling and analysis for lead and zinc protoporphyrin levels.

1926.62(d)(2)(v)(F)—Training as required under paragraph (l)(1)(I) [Employee Information and Training] of this section regarding 29 CFR 1926.59, Hazard Communication; training as required under paragraph (l)(2)(iii) [Training Program] of this section, regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.

1926.62(d)(3)(i)—Except as provided under paragraphs (d)(3)(iii) and (d)(3)(iv) [Basis of Initial Determination] of this section the employer shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the relevant considerations. [Reference paragraph (d)(3)(i) for specific information.]

1926.62(d)(4)(i)—Where a determination conducted under paragraphs (d)(1), (2), and (3) [Exposure Assessment] of this section shows the possibility of any employee exposure at or above the action level the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.

1926.62(d)(6)(ii)—If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL the employer shall perform monitoring in accordance with this paragraph at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) [Additional Exposure Assessments] of this section.

1926.62(d)(6)(iii)—If the initial determination reveals that employee exposure is above the PEL the employer shall perform monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in paragraph (d)(6)(ii) [Frequency] of this section, except as otherwise provided in paragraph (d)(7) [Additional Exposure Assessments] of this section. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) [Additional Exposure Assessments] of this section.

Medical Surveillance

1926.62(d)(7)—Additional exposure assessments. Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, the employer shall conduct additional monitoring in accordance with this paragraph.

1926.62(d)(8)(i)—The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1926.62(d)(8)(ii)—Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL the employer shall include in the written notice a statement that the employees exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

1926.62(f)(2)(ii)—If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with paragraph (j)(3)(i)(B) [Medical Examinations and Consultations] of this section to determine whether or not the employee can use a respirator while performing the required duty.
1926.62(j)(1)(i)—The employer shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.

1926.62(j)(1)(ii)—The employer shall institute a medical surveillance program in accordance with paragraphs (j)(2) [Biological Monitoring] and (j)(3) [Medical Examinations and Consultations] of this section for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months.

1926.62(j)(2)(i)—Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under paragraphs (j)(1)(i) and (ii) [Medical Surveillance] of this section on a schedule. [Reference paragraph (j)(2)(i) for specific information.]

1926.62(j)(2)(i)(A)—For each employee covered under paragraph (j)(1)(ii) [Medical Surveillance] of this section, at least every 2 months for the first 6 months and every 6 months thereafter;

1926.62(j)(2)(i)(B)—For each employee covered under paragraphs (j)(1)(i) or (ii) [Medical Surveillance] of this section whose last blood sampling and analysis indicated a blood lead level at or above 40 μg/dl, at least every two months. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 μg/dl.

1926.62(j)(2)(i)(C)—For each employee who is removed from exposure to lead due to an elevated blood lead level at least monthly during the removal period.

1926.62(j)(2)(iv)(A)—Within five working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level.

1926.62(j)(2)(iv)(B)—The employer shall notify each employee whose blood lead level is at or above 40 μg/dl that the standard requires temporary medical removal with Medical Removal Protection benefits when an employee’s blood lead level exceeds the numerical criterion for medical removal under paragraph (k)(1)(i) [Medical Removal Protection] of this section.

1926.62(j)(3)(i)—Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (j)(1)(ii) [Medical Surveillance] of this section on the following schedule:

1926.62(j)(3)(i)(A)—At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 μg/dl. [Reference paragraph (j)(3)(ii) for specific information.]

1926.62(j)(3)(i)(B)—As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee’s ability to procreate a healthy child, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use.

1926.62(j)(3)(iii)(B)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician’s written opinion, whichever is later.

1926.62(j)(3)(iv)(A)—The employer shall provide an initial physician conducting a medical examination or consultation under this section with additional information. [Reference paragraph (j)(3)(iv) for specific information.]

1926.62(j)(3)(v)(A)—The employer shall obtain and furnish the employee with a copy of a written medical opinion.
from each examining or consulting physician which contains specific information. [Reference paragraph (j)(3)(v) for specific information.]

1926.62(j)(4)(ii)—If therapeutic or diagnostic chelation is to be performed by any person in paragraph (j)(4)(i) [Chelation] of this section, the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.

1926.62(k)(2)(i)—Provision of medical removal protection benefits. The employer shall provide an employee up to eighteen (18) months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this section.

Competent Person

1926.62(e)(2)(iii)—The compliance program shall provide for frequent and regular inspections of job sites, materials, and equipment to be made by a competent person.

Qualified Person

1926.62(j)(3)(iii)(B)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician’s written opinion, whichever is later.

1926.62(j)(3)(iv)(A)—The employer shall provide an initial physician conducting a medical examination or consultation under this section with additional information. [Reference paragraph (j)(3)(iv) for specific information.]

1926.62(j)(3)(v)(A)—The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains specific information. [Reference paragraph (j)(3)(v) for specific information.]

1926.62(j)(4)(ii)—If therapeutic or diagnostic chelation is to be performed by any person in paragraph (j)(4)(i) [Chelation] of this section, the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.

Signs, Markings and Tags

1926.62(g)(2)(vii)(A)—The employer shall ensure that the containers of contaminated protective clothing and equipment required by paragraph (g)(2)(v) of this section are labeled. [Reference paragraph (g)(2)(vii)(A) for specific information.]

1926.62(g)(2)(vii)(B)—Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment required by paragraph (g)(2)(v) in lieu of the labeling requirements in paragraph (g)(2)(vii)(A) of this section. Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.

1926.62(l)(1)(i)—Hazard communication. The employer shall include lead in the program established to comply with the Hazard Communication Standard (HCS) (Sec. 1910.1200). The employer shall ensure that each employee has access to labels on containers of lead and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (l) of this section. The employer shall ensure that the hazards are addressed. [Reference paragraph (l)(1)(i) for further information.]

1926.62(m)(1)(i)—The employer shall post the following warning signs in each work area where an employee’s exposure to lead is above the PEL.
1926.62(m)(1)(iii)—The employer shall ensure that signs required by this paragraph (m) [Signs] are illuminated and cleaned as necessary so that the legend is readily visible.

1926.64—PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS

Scope/Application: This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards. This section applies to the following: A process which involves a chemical at or above the specified threshold quantities listed in Appendix A [List of Highly Hazardous Chemicals, Toxics and Reactives (Mandatory)] to this section; A process which involves a flammable liquid or gas (as defined in 1926.59(c) [Hazard Communication] of this part) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for: Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels are not a part of a process containing another highly hazardous chemical covered by this standard; Flammable liquids stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.

Exception: This section does not apply to: retail facilities; oil or gas well drilling or servicing operations; or, normally unoccupied remote facilities.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—written action plan, initial hazard analysis and every five years, written operating procedures, audits, investigations, safe work practices
• Inspections and Tests—frequent inspections, documented
• Recordkeeping—hot work permits, management of change, training records, retention requirements
• Certification—audits
• Training and Communications—initial and refresher training, training records
• Qualified Person—incident investigation team

Programs, Policies and Procedures

1926.64(c)(1)—Employers shall develop a written plan of action regarding the implementation of the employee participation required by this paragraph.

1926.64(d)—Process safety information. In accordance with the schedule set forth in paragraph (e)(1) [Process Hazard Analysis] of this section, the employer shall complete a compilation of written process safety information before conducting any process hazard analysis required by the standard. The compilation of written process safety information is to enable the employer and the employees involved in operating the process to identify and understand the hazards posed by those processes involving highly hazardous chemicals. This process safety information shall include information pertaining to the hazards of the highly hazardous chemicals used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process. [Reference paragraph (d)(1), (d)(2) and (d)(3) for specific information.]

1926.64(e)(1)—The employer shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this standard. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process. Employers shall determine and document the priority order for conducting process hazard analyses based on a rationale which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process.

1926.64(e)(2)—The employer shall use one or more methodologies that are appropriate to determine and evaluate the hazards of the process being analyzed. [Reference paragraph (e)(3) for specific information.]

1926.64(e)(5)—The employer shall establish a system to promptly address the team’s findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.
1926.64(e)(6)—At least every five (5) years after the completion of the initial process hazard analysis, the process hazard analysis shall be updated and revalidated by a team meeting the requirements in paragraph (e)(4) [Process Hazard Analysis] of this section, to assure that the process hazard analysis is consistent with the current process.

1926.64(e)(7)—Employers shall retain process hazards analyses and updates or revalidations for each process covered by this section, as well as the documented resolution of recommendations described in paragraph (e)(5) [Process Hazard Analysis] of this section for the life of the process.

1926.64(f)(1)—The employer shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address specific elements. [Reference paragraph (f)(1) for specific information.]

1926.64(f)(2)—Operating procedures shall be readily accessible to employees who work in or maintain a process.

1926.64(f)(3)—The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to facilities. The employer shall certify annually that these operating procedures are current and accurate.

1926.64(f)(4)—The employer shall develop and implement safe work practices to provide for the control of hazards during operations such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a facility by maintenance, contractor, laboratory, or other support personnel. These safe work practices shall apply to employees and contractor employees.

1926.64(g)(1)(i)—Each employee presently involved in operating a process, and each employee before being involved in operating a newly assigned process, shall be trained in an overview of the process and in the operating procedures as specified in paragraph (f) [Operating Procedures] of this section. The training shall include emphasis on the specific safety and health hazards, emergency operations including shutdown, and safe work practices applicable to the employee’s job tasks.

1926.64(g)(1)(ii)—In lieu of initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.

1926.64(g)(2)—Refresher training. Refresher training shall be provided at least every three years, and more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. The employer, in consultation with the employees involved in operating the process, shall determine the appropriate frequency of refresher training.

1926.64(h)(2)(i)—The employer, when selecting a contractor, shall obtain and evaluate information regarding the contract employer’s safety performance and programs.

1926.64(h)(2)(iii)—The employer shall explain to contract employers the applicable provisions of the emergency action plan required by paragraph (n) [Incident Investigation] of this section.

1926.64(h)(2)(iv)—The employer shall develop and implement safe work practices consistent with paragraph (f)(4) [Operating Procedures] of this section, to control the entrance, presence, and exit of contract employers and contract employees in covered process areas.

1926.64(h)(2)(v)—The employer shall periodically evaluate the performance of contract employers in fulfilling their obligations as specified in paragraph (h)(3) [Contractor Employer Responsibilities] of this section.

1926.64(h)(3)(i)—The contract employer shall assure that each contract employee is trained in the work practices necessary to safely perform his/her job.
1926.64(h)(3)(ii)—The contract employer shall assure that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan.

1926.64(i)(1)—The employer shall perform a pre-startup safety review for new facilities and for modified facilities when the modification is significant enough to require a change in the process safety information. [Reference paragraph (i)(2) for specific information.]

1926.64(j)(2)—Written procedures. The employer shall establish and implement written procedures to maintain the on-going integrity of process equipment.

1926.64(j)(3)—Training for process maintenance activities. The employer shall train each employee involved in maintaining the on-going integrity of process equipment in an overview of that process and its hazards and in the procedures applicable to the employee’s job tasks to assure that the employee can perform the job tasks in a safe manner.

1926.64(m)(1)—The employer shall investigate each incident which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace.

1926.64(m)(2)—An incident investigation shall be initiated as promptly as possible, but not later than 48 hours following the incident.

1926.64(m)(5)—The employer shall establish a system to promptly address and resolve the incident report findings and recommendations. Resolutions and corrective actions shall be documented.

1926.64(m)(6)—The report shall be reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract employees where applicable.

1926.64(n)—Emergency planning and response. The employer shall establish and implement an emergency action plan for the entire plant in accordance with the provisions of 29 CFR 1926.35(a) [Employee Emergency Action Plans]. In addition, the emergency action plan shall include procedures for handling small releases. Employers covered under this standard may also be subject to the hazardous waste and emergency response provisions contained in 29 CFR 1926.65(a), (p) and (q) [Hazardous Waste Operations and Emergency Response].

Inspections and Tests

1926.64(j)(4)(i)—Inspections and tests shall be performed on process equipment.

1926.64(j)(4)(iii)—The frequency of inspections and tests of process equipment shall be consistent with applicable manufacturers’ recommendations and good engineering practices, and more frequently if determined to be necessary by prior operating experience.

1926.64(j)(6)(ii)—Appropriate checks and inspections shall be performed to assure that equipment is installed properly and consistent with design specifications and the manufacturer’s instructions.

1926.64(m)(1)—The employer shall investigate each incident which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace.

1926.64(m)(2)—An incident investigation shall be initiated as promptly as possible, but not later than 48 hours following the incident.

Recordkeeping

1926.64(c)(1)—Employers shall develop a written plan of action regarding the implementation of the employee participation required by this paragraph.
1926.64(d)—Process safety information. In accordance with the schedule set forth in paragraph (e)(1) [Process Hazard Analysis] of this section, the employer shall complete a compilation of written process safety information before conducting any process hazard analysis required by the standard. The compilation of written process safety information is to enable the employer and the employees involved in operating the process to identify and understand the hazards posed by those processes involving highly hazardous chemicals. This process safety information shall include information pertaining to the hazards of the highly hazardous chemicals used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process. [Reference paragraph (d)(1), (d)(2) and (d)(3) for specific information.]

1926.64(e)(1)—The employer shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this standard. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process. Employers shall determine and document the priority order for conducting process hazard analyses based on a rationale which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process.

1926.64(e)(5)—The employer shall establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.

1926.64(e)(6)—At least every five (5) years after the completion of the initial process hazard analysis, the process hazard analysis shall be updated and revalidated by a team meeting the requirements in paragraph (e)(4) [Process Hazard Analysis] of this section, to assure that the process hazard analysis is consistent with the current process.

1926.64(e)(7)—Employers shall retain process hazards analyses and updates or revalidations for each process covered by this section, as well as the documented resolution of recommendations described in paragraph (e)(5) [Process Hazard Analysis] of this section for the life of the process.

1926.64(f)(2)—Operating procedures shall be readily accessible to employees who work in or maintain a process.

1926.64(f)(3)—The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to facilities. The employer shall certify annually that these operating procedures are current and accurate.

1926.64(g)(1)(ii)—In lieu of initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.

1926.64(g)(3)—Training documentation. The employer shall ascertain that each employee involved in operating a process has received and understood the training required by this paragraph. The employer shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training.

1926.64(h)(2)(vi)—The employer shall maintain a contract employee injury and illness log related to the contractor’s work in process areas.

1926.64(h)(3)(iii)—The contract employer shall document that each contract employee has received and understood the training required by this paragraph. The contract employer shall prepare a record which contains the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training.

1926.64(j)(2)—Written procedures. The employer shall establish and implement written procedures to maintain the on-going integrity of process equipment.
The employer shall document each inspection and test that has been performed on process equipment. The documentation shall identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.

The employer shall issue a hot work permit for hot work operations conducted on or near a covered process.

The permit shall document that the fire prevention and protection requirements in 29 CFR 1926.352 have been implemented prior to beginning the hot work operations; it shall indicate the date(s) authorized for hot work; and identify the object on which hot work is to be performed. The permit shall be kept on file until completion of the hot work operations.

The employer shall establish and implement written procedures to manage changes (except for “replacements in kind”) to process chemicals, technology, equipment, and procedures; and, changes to facilities that affect a covered process. [Reference paragraph (l)(2) for specific information.]

If a change covered by this paragraph results in a change in the operating procedures or practices required by paragraph (f) [Operating Procedures] of this section, such procedures or practices shall be updated accordingly.

Incident investigation reports shall be retained for five years.

Employers shall certify that they have evaluated compliance with the provisions of this section at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed. [Reference paragraph (o)(2) for specific information.]

A report of the findings of the audit shall be developed.

The employer shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.

Employers shall retain the two (2) most recent compliance audit reports.

Certification

The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to facilities. The employer shall certify annually that these operating procedures are current and accurate.

In lieu of initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.

Employers shall certify that they have evaluated compliance with the provisions of this section at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed. [Reference paragraph (o)(2) for specific information.]
**Training and Communications**

1926.64(e)(5)—The employer shall establish a system to promptly address the team’s findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.

1926.64(g)(1)(i)—Each employee presently involved in operating a process, and each employee before being involved in operating a newly assigned process, shall be trained in an overview of the process and in the operating procedures as specified in paragraph (f) [Operating Procedures] of this section. The training shall include emphasis on the specific safety and health hazards, emergency operations including shutdown, and safe work practices applicable to the employee’s job tasks.

1926.64(g)(1)(ii)—In lieu of initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.

1926.64(g)(2)—Refresher training. Refresher training shall be provided at least every three years, and more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. The employer, in consultation with the employees involved in operating the process, shall determine the appropriate frequency of refresher training.

1926.64(h)(2)(ii)—The employer shall inform contract employers of the known potential fire, explosion, or toxic release hazards related to the contractor’s work and the process.

1926.64(h)(2)(iii)—The employer shall explain to contract employers the applicable provisions of the emergency action plan required by paragraph (n) [Incident Investigation] of this section.

1926.64(h)(3)(i)—The contract employer shall assure that each contract employee is trained in the work practices necessary to safely perform his/her job.

1926.64(h)(3)(ii)—The contract employer shall assure that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan.

1926.64(h)(3)(v)—The contract employer shall advise the employer of any unique hazards presented by the contract employer’s work, or of any hazards found by the contract employer’s work.

1926.64(j)(3)—Training for process maintenance activities. The employer shall train each employee involved in maintaining the on-going integrity of process equipment in an overview of that process and its hazards and in the procedures applicable to the employee’s job tasks to assure that the employee can perform the job tasks in a safe manner.

1926.64(l)(3)—Employees involved in operating a process and maintenance and contract employees whose job tasks will be affected by a change in the process shall be informed of, and trained in, the change prior to start-up of the process or affected part of the process.

**Qualified Person**

1926.64(m)(3)—An incident investigation team shall be established and consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.
1926.65—HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE

Scope/Application: This section covers the following operations, unless the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards: Clean-up operations required by a governmental body, whether Federal, state, local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA’s National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained); Corrective actions involving clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 et seq.); Voluntary clean-up operations at sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites; Operations involving hazardous wastes that are conducted at treatment, storage, and disposal (TSD) facilities regulated by 40 CFR parts 264 and 265 pursuant to RCRA; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations; and Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard. All provisions of paragraph (p) [Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA)] of this section cover any treatment, storage or disposal (TSD) operation regulated by 40 CFR parts 264 and 265 or by state law authorized under RCRA, and required to have a permit or interim status from EPA pursuant to 40 CFR 270.1 or from a state agency pursuant to RCRA.

Exception: Employers who are not required to have a permit or interim status because they are conditionally exempt small quantity generators under 40 CFR 261.3 or are generators who qualify under 40 CFR 262.34 for exemptions from regulation under 40 CFR parts 264, 265 and 270 (“excepted employers”) are not covered by paragraphs (p)(1) through (p)(7) [Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA)] of this section. Excepted employers who are required by the EPA or state agency to have their employees engage in emergency response or who direct their employees to engage in emergency response are covered by paragraph (p)(8) [Emergency Response Program] of this section, and cannot be exempted by paragraph (p)(8)(i) [Emergency Response Plan] of this section. Excepted employers who are not required to have employees engage in emergency response, who direct their employees to evacuate in the case of such emergencies and who meet the requirements of paragraph (p)(8)(i) [Emergency Response Plan] of this section, are exempt from the balance of paragraph (p)(8) [Emergency Response Program] of this section. If an area is used primarily for treatment, storage, or disposal, any emergency response operations in that area shall comply with paragraph (p)(8) [Emergency Response Program] of this section. In other areas not used primarily for treatment, storage, or disposal, any emergency response operations shall comply with paragraph (q) [Emergency Response to Hazardous Substance Releases] of this section. Compliance with the requirements of paragraph (q) [Emergency Response to Hazardous Substance Releases] of this section shall be deemed to be in compliance with the requirements of paragraph (p)(8) [Emergency Response Program] of this section. Emergency response operations for releases of, or substantial threats of releases of, hazardous substances which are not covered by paragraphs (a)(1)(i) through (a)(1)(iv) [Scope] of this section must only comply with the requirements of paragraph (q) [Emergency Response to Hazardous Substance Releases] of this section.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—safety program, PPE program, spill containment program, site control program, emergency response plan, new technology programs
- Inspections and Tests—evaluations, preliminary
- Recordkeeping—retention requirements
- Certification—training
- Training and Communications—contractors, certificates
- Exposure Monitoring—prior to entry, initial, periodic
- Medical Surveillance—examinations, written opinion
- Competent Person—competency
- Qualified Person—site characterization and analysis
- Signs, Markings and Tags—labeling

Programs, Policies and Procedures

1926.65(b)(1)(i)—Employers shall develop and implement a written safety and health program for their employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and
1926.65(b)(1)(ii)—The **written safety and health program** shall incorporate the following:

- **1926.65(b)(1)(ii)(A)**—An organizational structure. [Reference paragraph (b)(2)(i) for specific elements.]

- **1926.65(b)(1)(ii)(B)**—A **comprehensive workplan**. [Reference paragraph (b)(3) for specific elements.]

- **1926.65(b)(1)(ii)(C)**—A **site-specific safety and health plan** which need not repeat the employer’s standard operating procedures required in paragraph (b)(1)(ii)(F) [Safety and Health Program] of this section. [Reference paragraph (b)(4)(ii) and (d)(3) for specific information.]

- **1926.65(b)(1)(ii)(D)**—The **safety and health training program**. [Reference paragraph (e)(2) for specific elements.]

- **1926.65(b)(1)(ii)(E)**—The **medical surveillance program**. [Reference paragraph (f)(2) for specific information.]

- **1926.65(b)(1)(ii)(F)**—The employer’s **standard operating procedures** for safety and health. [Reference paragraph (d)(1) and (k)(2) for specific information.]

- **1926.65(b)(1)(ii)(G)**—Any necessary interface between general program and site specific activities. [**Note:** Reference paragraph (j) for specific information.]

**Note to (b):** Safety and health programs developed and implemented to meet other Federal, state, or local regulations are considered acceptable in meeting this requirement if they cover or are modified to cover the topics required in this paragraph. An additional or separate safety and health program is not required by this paragraph.

- **1926.65(b)(1)(iv)**—Contractors and sub-contractors. An employer who retains contractor or sub-contractor services for work in hazardous waste operations shall inform those contractors, sub-contractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by the employer, including those identified in the employer’s **information program**.

- **1926.65(b)(2)(i)**—The **organizational structure** part of the program shall establish the specific chain of command and specify the overall responsibilities of supervisors and employees. It shall include, at a minimum, specific elements. [Reference paragraph (b)(2)(i) for specific elements.]

- **1926.65(b)(2)(ii)**—The **organizational structure** shall be reviewed and updated as necessary to reflect the current status of waste site operations.

- **1926.65(b)(3)**—Comprehensive **workplan** part of the site program. The comprehensive workplan part of the program shall address the tasks and objectives of the site operations and the logistics and resources required to reach those tasks and objectives. [Reference paragraph (b)(3) for specific elements.]

- **1926.65(b)(4)(i)**—General. The **site safety and health plan**, which must be kept on site, shall address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. [Reference paragraph (b)(4)(ii) for specific elements.]

- **1926.65(c)(1)**—General. **Hazardous waste sites shall be evaluated** in accordance with this paragraph to identify specific site hazards and to determine the appropriate safety and health control procedures needed to protect employees from the identified hazards.

- **1926.65(d)(1)**—General. **Appropriate site control procedures shall be implemented** to control employee exposure to hazardous substances before clean-up work begins.
1926.65(d)(2)—Site control program. A site control program for protecting employees which is part of the employer’s site safety and health program required in paragraph (b) [Safety and Health Program] of this section shall be developed during the planning stages of a hazardous waste clean-up operation and modified as necessary as new information becomes available. [Reference paragraph (d)(3) for specific information.]

1926.65(e)(4)—Management and supervisor training. On-site management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall receive 40 hours initial training, and three days of supervised field experience (the training may be reduced to 24 hours and one day if the only area of their responsibility is employees covered by paragraphs (e)(3)(ii) and (e)(3)(iii) [Training] and at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer’s safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

1926.65(g)—Engineering controls, work practices, and personal protective equipment for employee protection. Engineering controls, work practices, personal protective equipment, or a combination of these shall be implemented in accordance with this paragraph to protect employees from exposure to hazardous substances and safety and health hazards.

1926.65(g)(5)—Personal protective equipment (PPE) program. A written personal protective equipment program, which is part of the employer’s safety and health program required in paragraph (b) [Safety and Health Program] of this section or required in paragraph (p)(1) [Safety and Health Program] of this section and which is also a part of the site-specific safety and health plan shall be established. The PPE program shall address the elements listed below. When elements, such as donning and doffing procedures, are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element. [Reference paragraph (g)(5) for specific information.]

1926.65(i)—Informational programs. Employers shall develop and implement a program, which is part of the employer’s safety and health program required in paragraph (b) [Safety and Health Program] of this section, to inform employees, contractors, and subcontractors (or their representative) actually engaged in hazardous waste operations of the nature, level and degree of exposure likely as a result of participation in such hazardous waste operations. Employees, contractors and subcontractors working outside of the operations part of a site are not covered by this standard.

1926.65(j)(1)(viii)—Where major spills may occur, a spill containment program, which is part of the employer’s safety and health program required in paragraph (b) [Safety and Health Program] of this section, shall be implemented to contain and isolate the entire volume of the hazardous substance being transferred. [Reference paragraph (j) for specific information.]

1926.65(k)(2)(i)—A decontamination procedure shall be developed, communicated to employees and implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists.

1926.65(k)(2)(ii)—Standard operating procedures shall be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

1926.65(k)(2)(iv)—Decontamination procedures shall be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

1926.65(l)(1)(i)—An emergency response plan shall be developed and implemented by all employers within the scope of paragraphs (a)(1)(i) through (ii) [Scope] of this section to handle anticipated emergencies prior to the commencement of hazardous waste operations. The plan shall be in writing and available for inspection and copying by employees, their representatives, OSHA personnel and other governmental agencies with relevant responsibilities.

1926.65(l)(1)(ii)—Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this
paragraph if they provide an emergency action plan complying with Sec. 1926.35 [Employee Emergency Action Plan] of this part. [Reference paragraph (l)(2) and (l)(3) for specific information.]

1926.65(l)(3)(v)—The site emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.

1926.65(l)(3)(vii)—Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

1926.65(o)(1)—The employer shall develop and implement procedures for the introduction of effective new technologies and equipment developed for the improved protection of employees working with hazardous waste clean-up operations, and the same shall be implemented as part of the site safety and health program to assure that employee protection is being maintained.

1926.65(o)(2)—New technologies, equipment or control measures available to the industry, such as the use of foams, absorbents, adsorbents, neutralizers, or other means to suppress the level of air contaminates while excavating the site or for spill control, shall be evaluated by employers or their representatives. Such an evaluation shall be done to determine the effectiveness of the new methods, materials, or equipment before implementing their use on a large scale for enhancing employee protection. Information and data from manufacturers or suppliers may be used as part of the employer’s evaluation effort. Such evaluations shall be made available to OSHA upon request.

Inspections and Tests

1926.65(b)(4)(iv)—Effectiveness of site safety and health plan. Inspections shall be conducted by the site safety and health supervisor or, in the absence of that individual, another individual who is knowledgeable in occupational safety and health, acting on behalf of the employer as necessary to determine the effectiveness of the site safety and health plan. Any deficiencies in the effectiveness of the site safety and health plan shall be corrected by the employer.

1926.65(c)(1)—General. Hazardous waste sites shall be evaluated in accordance with this paragraph to identify specific site hazards and to determine the appropriate safety and health control procedures needed to protect employees from the identified hazards.

1926.65(c)(2)—Preliminary evaluation. A preliminary evaluation of a site’s characteristics shall be performed prior to site entry by a qualified person in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site’s specific characteristics shall be performed by a qualified person in order to further identify existing site hazards and to further aid in the selection of the appropriate engineering controls and personal protective equipment for the tasks to be performed.

1926.65(c)(3)—Hazard identification. All suspected conditions that may pose inhalation or skin absorption hazards that are immediately dangerous to life or health (IDLH), or other conditions that may cause death or serious harm, shall be identified during the preliminary survey and evaluated during the detailed survey. Examples of such hazards include, but are not limited to, confined space entry, potentially explosive or flammable situations, visible vapor clouds, or areas where biological indicators such as dead animals or vegetation are located.

1926.65(c)(4)—Required information. The following information to the extent available shall be obtained by the employer prior to allowing employees to enter a site. [Reference paragraph (c)(4) for specific elements.]

1926.65(l)(3)(vii)—Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

Certification

1926.65(e)(6)—Training certification. Employees and supervisors that have received and successfully completed the training and field experience specified in paragraphs (e)(1) through (e)(4) [Training] of this section shall be certified by
their instructor or the head instructor and trained supervisor as having successfully completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of paragraph (e)(9) [Equivalent Training] of this section shall be prohibited from engaging in hazardous waste operations.

1926.65(e)(9)—Equivalent training. Employers who can show by documentation or certification that an employee’s work experience and/or training has resulted in training equivalent to that training required in paragraphs (e)(1) through (e)(4) [Training] of this section shall not be required to provide the initial training requirements of those paragraphs to such employees and shall provide a copy of the certification or documentation to the employee upon request. However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience.

Recordkeeping

1926.65(b)(1)(i)—Employers shall develop and implement a written safety and health program for their employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards, and provide for emergency response for hazardous waste operations. [Reference paragraph (b)(1)(ii) for specific elements.]

1926.65(b)(1)(v)—Program availability. The written safety and health program shall be made available to any contractor or subcontractor or their representative who will be involved with the hazardous waste operation; to employees; to employee designated representatives; to OSHA personnel, and to personnel of other Federal, state, or local agencies with regulatory authority over the site.

1926.65(b)(4)(iii)—Pre-entry briefing. The site specific safety and health plan shall provide for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of the site safety and health plan and that this plan is being followed. The information and data obtained from site characterization and analysis work required in paragraph (c) [Site Characterization and Analysis] of this section shall be used to prepare and update the site safety and health plan.

1926.65(c)(4)—Required information. The following information to the extent available shall be obtained by the employer prior to allowing employees to enter a site. [Reference paragraph (c)(4) for specific elements.]

1926.65(c)(8)—Employee notification. Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. The employer may utilize information developed for the hazard communication standard for this purpose.

1926.65(e)(6)—Training certification. Employees and supervisors that have received and successfully completed the training and field experience specified in paragraphs (e)(1) through (e)(4) [Training] of this section shall be certified by their instructor or the head instructor and trained supervisor as having successfully completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of paragraph (e)(9) [Equivalent Training] of this section shall be prohibited from engaging in hazardous waste operations.

1926.65(e)(9)—Equivalent training. Employers who can show by documentation or certification that an employee’s work experience and/or training has resulted in training equivalent to that training required in paragraphs (e)(1) through (e)(4) [Training] of this section shall not be required to provide the initial training requirements of those paragraphs to such employees and shall provide a copy of the certification or documentation to the employee upon request. However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience.
1926.65(f)(6)—**Information** provided to the physician. The employer shall provide one copy of this standard and its appendices to the attending physician, and additional information for each employee: [Reference paragraph (f)(6) for specific information.]

1926.65(f)(8)(i)—An accurate record of the medical surveillance required by paragraph (f) [Medical Surveillance] of this section shall be retained. This record shall be retained for the period specified and meet the criteria of 29 CFR 1926.33 {Access to Employee Exposure and Medical Records}. [Reference paragraph (f)(8)(ii) for specific information.]

1926.65(g)(5)—Personal protective equipment (PPE) program. A written personal protective equipment program, which is part of the employer’s safety and health program required in paragraph (b) [Safety and Health Program] of this section or required in paragraph (p)(1) [Safety and Health Program] of this section and which is also a part of the site-specific safety and health plan shall be established. The PPE program shall address the elements listed below. When elements, such as donning and doffing procedures, are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element. [Reference paragraph (g)(5) for specific information.]

1926.65(l)(1)(i)—An emergency response plan shall be developed and implemented by all employers within the scope of paragraphs (a)(1)(i) through (ii) [Scope] of this section to handle anticipated emergencies prior to the commencement of hazardous waste operations. The plan shall be in writing and available for inspection and copying by employees, their representatives, OSHA personnel and other governmental agencies with relevant responsibilities.

**Training and Communications**

1926.65(b)(1)(iv)—Contractors and sub-contractors. An employer who retains contractor or sub-contractor services for work in hazardous waste operations shall inform those contractors, sub-contractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by the employer, including those identified in the employer’s information program.

1926.65(b)(4)(iii)—Pre-entry briefing. The site specific safety and health plan shall provide for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of the site safety and health plan and that this plan is being followed. The information and data obtained from site characterization and analysis work required in paragraph (c) [Site Characterization and Analysis] of this section shall be used to prepare and update the site safety and health plan.

1926.65(c)(7)(i)—Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances shall be identified. Employees who will be working on the site shall be informed of any risks that have been identified. In situations covered by the Hazard Communication Standard, 29 CFR 1926.59, training required by that standard need not be duplicated.

1926.65(e)(8)—Employee notification. Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. The employer may utilize information developed for the hazard communication standard for this purpose.

1926.65(e)(1)(i)—All employees working on site (such as but not limited to equipment operators, general laborers and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards, and they shall receive review training as specified in this paragraph. [Reference paragraph (e)(2) for specific elements.]

1926.65(e)(3)(i)—General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor.
1926.65(e)(3)(ii)—Workers on site only occasionally for a specific limited task (such as, but not limited to, ground water monitoring, land surveying, or geo-physical surveying) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

1926.65(e)(3)(iii)—Workers regularly on site who work in areas which have been monitored and fully characterized indicating that exposures are under permissible exposure limits and published exposure limits where respirators are not necessary, and the characterization indicates that there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of instruction off the site and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.

1926.65(e)(3)(iv)—Workers with 24 hours of training who are covered by paragraphs (e)(3)(ii) and (e)(3)(iii) [Training] of this section, and who become general site workers or who are required to wear respirators, shall have the additional 16 hours and two days of training necessary to total the training specified in paragraph (e)(3)(i) [Training].

1926.65(e)(4)—Management and supervisor training. On-site management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall receive 40 hours initial training, and three days of supervised field experience (the training may be reduced to 24 hours and one day if the only area of their responsibility is employees covered by paragraphs (e)(3)(ii) and (e)(3)(iii)) [Training] and at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer’s safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

1926.65(e)(5)—Qualifications for trainers. Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.

1926.65(e)(6)—Training certification. Employees and supervisors that have received and successfully completed the training and field experience specified in paragraphs (e)(1) through (e)(4) [Training] of this section shall be certified by their instructor or the head instructor and trained supervisor as having successfully completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of paragraph (e)(9) [Equivalent Training] of this section shall be prohibited from engaging in hazardous waste operations.

1926.65(e)(7)—Emergency response. Employees who are engaged in responding to hazardous emergency situations at hazardous waste clean-up sites that may expose them to hazardous substances shall be trained in how to respond to such expected emergencies.

1926.65(e)(8)—Refresher training. Employees specified in paragraph (e)(1) [Training] of this section, and managers and supervisors specified in paragraph (e)(4) [Management and Supervisor Training] of this section, shall receive eight hours of refresher training annually on the items specified in paragraph (e)(2) and/or (e)(4) [Training] of this section, any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics.

1926.65(e)(9)—Equivalent training. Employers who can show by documentation or certification that an employee’s work experience and/or training has resulted in training equivalent to that training required in paragraphs (e)(1) through (e)(4) [Training] of this section shall not be required to provide the initial training requirements of those paragraphs to such employees and shall provide a copy of the certification or documentation to the employee upon request. However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience.
1926.65(k)(7)—Commercial laundries or cleaning establishments. Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment shall be informed of the potentially harmful effects of exposures to hazardous substances.

1926.65(l)(3)(iv)—The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.

Exposure Monitoring

1926.65(c)(6)—Monitoring. The following monitoring shall be conducted during initial site entry when the site evaluation produces information that shows the potential for ionizing radiation or IDLH conditions, or when the site information is not sufficient reasonably to eliminate these possible conditions. [Reference paragraph (c)(6) for specific information.]

1926.65(h)(2)—Initial entry. Upon initial entry, representative air monitoring shall be conducted to identify any IDLH condition, exposure over permissible exposure limits or published exposure levels, exposure over a radioactive material’s dose limits or other dangerous condition such as the presence of flammable atmospheres or oxygen-deficient environments.

1926.65(h)(3)—Periodic monitoring. Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits or published exposure levels since prior monitoring. Situations where it shall be considered whether the possibility that exposures have risen are as follows: [Reference paragraph (h)(3) for specific information.]

1926.65(k)(2)(iv)—Decontamination procedures shall be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

Medical Surveillance

1926.65(f)(1)—General. Employers engaged in operations specified in paragraphs (a)(1)(i) through (a)(1)(iv) [Scope] of this section and not covered by paragraph (a)(2)(iii) [Scope] exceptions and employers of employees specified in paragraph (q)(9) [Medical Surveillance and Consultation] shall institute a medical surveillance program in accordance with this paragraph. [Reference paragraph (f)(2) for covered employees.]

1926.65(f)(3)—Frequency of medical examinations and consultations. Medical examinations and consultations shall be made available by the employer to each employee covered under paragraph (f)(2) [Medical Surveillance] of this section on the following schedules. [Reference paragraph (f)(4) for specific information on examinations.]

1926.65(f)(3)(i)(A)—Prior to assignment.

1926.65(f)(3)(i)(B)—At least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate.

1926.65(f)(3)(i)(C)—At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months.

1926.65(f)(3)(i)(D)—As soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits or published exposure levels in an emergency situation.

1926.65(f)(3)(i)(E)—At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.

1926.65(f)(3)(ii)—For employees covered under paragraph (f)(2)(iii) [Medical Surveillance] and for all employees including those of employers covered by paragraph (a)(1)(v) [Scope] who may have been injured, received a health impairment,
developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used:

1926.65(f)(3)(ii)(A)—As soon as possible following the emergency incident or development of signs or symptoms.

1926.65(f)(3)(ii)(B)—At additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.

1926.65(f)(6)—Information provided to the physician. The employer shall provide one copy of this standard and its appendices to the attending physician, and additional information for each employee: [Reference paragraph (f)(6) for specific information.]

1926.65(f)(7)(i)—The employer shall obtain and furnish the employee with a copy of a written opinion from the attending physician. [Reference paragraph (f)(7)(i) for specific information.]

Competent Person

1926.65(e)(5)—Qualifications for trainers. Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.

Qualified Person

1926.65(c)(2)—Preliminary evaluation. A preliminary evaluation of a site’s characteristics shall be performed prior to site entry by a qualified person in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site’s specific characteristics shall be performed by a qualified person in order to further identify existing site hazards and to further aid in the selection of the appropriate engineering controls and personal protective equipment for the tasks to be performed.

Signs, Markings and Tags

1926.65(j)(1)(i)—Hazardous substances and contaminated soils, liquids, and other residues shall be handled, transported, labeled, and disposed of in accordance with this paragraph.

1926.65(j)(8)(i)—Drums and containers shall be identified and classified prior to packaging for shipment.

1926.65(n)(1)(iii)—Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose.

1926.65(n)(2)(i)—Outlets for nonpotable water, such as water for fire fighting purposes, shall be identified to indicate clearly that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.

Note: Certain operations conducted under the Resource Conservation and Recovery Act of 1976 (RCRA). Employers conducting operations at treatment, storage and disposal (TSD) facilities specified in paragraph (a)(1)(iv)[Scope] of this section shall provide and implement the programs specified in this paragraph. See the “Notes and Exceptions” to paragraph (a)(2)(iii) [Scope] of this section for employers not covered.
STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—hazard communication program, safety and health program, new technology program, medical surveillance program, decontamination program, emergency response plan, material handling program
- Recordkeeping—program, records
- Certification—training, annual
- Training and Communications—training program, initial and annual training
- Medical Surveillance—program
- Competent Person—credentials

Programs, Policies and Procedures

1926.65(p)(1)—Safety and health program. The employer shall develop and implement a written safety and health program for employees involved in hazardous waste operations that shall be available for inspection by employees, their representatives and OSHA personnel. The program shall be designed to identify, evaluate and control safety and health hazards in their facilities for the purpose of employee protection, to provide for emergency response meeting the requirements of paragraph (p)(8) [Emergency Response Plan] of this section and to address as appropriate site analysis, engineering controls, maximum exposure limits, hazardous waste handling procedures and uses of new technologies.

1926.65(p)(2)—Hazard communication program. The employer shall implement a hazard communication program meeting the requirements of 29 CFR 1926.59—Hazard Communication as part of the employer’s safety and program. Note to 1926.65—The exemption for hazardous waste provided in Sec. 1926.59 [Hazard Communication] is applicable to this section.

1926.65(p)(3)—Medical surveillance program. The employer shall develop and implement a medical surveillance program meeting the requirements of paragraph (f) [Medical Surveillance] of this section.

1926.65(p)(4)—Decontamination program. The employer shall develop and implement a decontamination procedure meeting the requirements of paragraph (k) [Decontamination] of this section.

1926.65(p)(5)—New technology program. The employer shall develop and implement procedures meeting the requirements of paragraph (o) [New Technology Programs] of this section for introducing new and innovative equipment into the workplace.

1926.65(p)(6)—Material handling program. Where employees will be handling drums or containers, the employer shall develop and implement procedures meeting the requirements of paragraphs (j)(1)(ii) through (viii) and (xi) [Handling Drums and Containers] of this section, as well as paragraphs (j)(3) [Material Handling Equipment] and (j)(8) [Shipping and Transport] of this section prior to starting such work.

1926.65(p)(7)(i)—New employees. The employer shall develop and implement a training program, which is part of the employer’s safety and health program, for employees exposed to health hazards or hazardous substances at TSD operations to enable the employees to perform their assigned duties and functions in a safe and healthful manner so as not endanger themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the initial training required by this paragraph shall be given a written certificate attesting that they have successfully completed the necessary training.

1926.65(p)(8)(i)—Emergency response plan. An emergency response plan shall be developed and implemented by all employers. Such plans need not duplicate any of the subjects fully addressed in the employer’s contingency planning required by permits, such as those issued by the U.S. Environmental Protection Agency, provided that the contingency plan is made part of the emergency response plan. The emergency response plan shall be a written portion of the employers safety and health program required in paragraph (p)(1) of this section. Employers who will evacuate their employees from the worksite location when an emergency occurs and who do not permit any of their employees to assist in handling the emergency are exempt from the requirements of paragraph (p)(8) if they provide an emergency action plan complying with 1926.35 of this part. [Reference paragraph (p)(8)(ii) for specific information.]
1926.65(p)(8)(iii)(A)—Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard operating procedures the employer has established for the job, the personal protective equipment to be worn and procedures for handling emergency incidents. [Reference paragraph (p)(8)(iii)(A) for exceptions.]

1926.65(p)(8)(iii)(B)—Employee members of TSD facility emergency response organizations shall be trained to a level of competence in the recognition of health and safety hazards to protect themselves and other employees. This would include training in the methods used to minimize the risk from safety and health hazards; in the safe use of control equipment; in the selection and use of appropriate personal protective equipment; in the safe operating procedures to be used at the incident scene; in the techniques of coordination with other employees to minimize risks; in the appropriate response to over exposure from health hazards or injury to themselves and other employees; and in the recognition of subsequent symptoms which may result from over exposures.

1926.65(p)(8)(iv)(D)—The site emergency response plan shall be reviewed periodically and, as necessary, be amended to keep it current with new or changing site conditions or information.

1926.65(p)(8)(iv)(F)—Based upon the information available at time of the emergency, the employer shall evaluate the incident and the site response capabilities and proceed with the appropriate steps to implement the site emergency response plan.

Recordkeeping

1926.65(p)(1)—Safety and health program. The employer shall develop and implement a written safety and health program for employees involved in hazardous waste operations that shall be available for inspection by employees, their representatives and OSHA personnel. The program shall be designed to identify, evaluate and control safety and health hazards in their facilities for the purpose of employee protection, to provide for emergency response meeting the requirements of paragraph (p)(8) [Emergency Response Plan] of this section and to address as appropriate site analysis, engineering controls, maximum exposure limits, hazardous waste handling procedures and uses of new technologies.

1926.65(p)(8)(iii)(C)—The employer shall certify that each covered employee has attended and successfully completed the training required in paragraph (p)(8)(iii) [Training] of this section, or shall certify the employee’s competency at least yearly. The method used to demonstrate competency for certification of training shall be recorded and maintained by the employer. [Reference paragraph (p)(8)(iv)(A) for specific information.]

Certification

1926.65(p)(7)(i)—New employees. The employer shall develop and implement a training program, which is part of the employer’s safety and health program, for employees exposed to health hazards or hazardous substances at TSD operations to enable the employees to perform their assigned duties and functions in a safe and healthful manner so as not endanger themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the initial training required by this paragraph shall be given a written certificate attesting that they have successfully completed the necessary training.

1926.65(p)(8)(iii)(C)—The employer shall certify that each covered employee has attended and successfully completed the training required in paragraph (p)(8)(iii) [Training] of this section, or shall certify the employee’s competency at least yearly. The method used to demonstrate competency for certification of training shall be recorded and maintained by the employer. [Reference paragraph (p)(8)(iv)(A) for specific information.]

Training and Communications

1926.65(p)(7)(i)—New employees. The employer shall develop and implement a training program, which is part of the employer’s safety and health program, for employees exposed to health hazards or hazardous substances at TSD operations to enable the employees to perform their assigned duties and functions in a safe and healthful manner so as not endanger themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the initial training required by this paragraph shall be given a written certificate attesting that they have successfully completed the necessary training.
1926.65(p)(7)(ii)—Current employees. Employers who can show by an employee’s previous work experience and/or training that the employee has had training equivalent to the initial training required by this paragraph, shall be considered as meeting the initial training requirements of this paragraph as to that employee. Equivalent training includes the training that existing employees might have already received from actual site work experience. Current employees shall receive eight hours of refresher training annually.

1926.65(p)(7)(iii)—Trainers. Trainers who teach initial training shall have satisfactorily completed a training course for teaching the subjects they are expected to teach or they shall have the academic credentials and instruction experience necessary to demonstrate a good command of the subject matter of the courses and competent instructional skills.

1926.65(p)(8)(iii)(A)—Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard operating procedures the employer has established for the job, the personal protective equipment to be worn and procedures for handling emergency incidents. [Reference paragraph (p)(8)(iii)(A) for exceptions.]

1926.65(p)(8)(iii)(B)—Employee members of TSD facility emergency response organizations shall be trained to a level of competence in the recognition of health and safety hazards to protect themselves and other employees. This would include training in the methods used to minimize the risk from safety and health hazards; in the safe use of control equipment; in the selection and use of appropriate personal protective equipment; in the safe operating procedures to be used at the incident scene; in the techniques of coordination with other employees to minimize risks; in the appropriate response to over exposure from health hazards or injury to themselves and other employees; and in the recognition of subsequent symptoms which may result from over exposures.

1926.65(p)(8)(iv)(C)—The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.

Medical Surveillance

1926.65(p)(3)—Medical surveillance program. The employer shall develop and implement a medical surveillance program meeting the requirements of paragraph (f) [Medical Surveillance] of this section.

Competent Person

1926.65(p)(7)(iii)—Trainers. Trainers who teach initial training shall have satisfactorily completed a training course for teaching the subjects they are expected to teach or they shall have the academic credentials and instruction experience necessary to demonstrate a good command of the subject matter of the courses and competent instructional skills.

Note: Emergency response to hazardous substance releases. This paragraph covers employers whose employees are engaged in emergency response no matter where it occurs except that it does not cover employees engaged in operations specified in paragraphs (a)(1)(i) through (a)(1)(iv) [Scope] of this section. Those emergency response organizations who have developed and implemented programs equivalent to this paragraph for handling releases of hazardous substances pursuant to section 303 of the Superfund Amendments and Reauthorization Act of 1986 (Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. 11003) shall be deemed to have met the requirements of this paragraph.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—emergency response plan
- Recordkeeping—program, records
- Certification—training
- Training and Communications—initially, annually, briefings
- Medical Surveillance—baseline, consultations
- Competent Person—competency
- Qualified Person—individual in charge, trainers
Programs, Policies and Procedures

1926.65(q)(1)—Emergency response plan. An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations. The plan shall be in writing and available for inspection and copying by employees, their representatives and OSHA personnel. Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan in accordance with 1926.35 [Employee Emergency Action Plans] of this part. [Reference paragraph (q)(2) for specific information.]

1926.65(q)(4)—Skilled support personnel. Personnel, not necessarily an employer’s own employees, who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer’s own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this paragraph for the employer’s regular employees. However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer’s own employees shall be used to assure the safety and health of these personnel.

1926.65(q)(11)(ii)—Where the clean-up is done on plant property using plant or workplace employees, such employees shall have completed the training requirements of the following: 29 CFR 1926.35 [Employee Emergency Action Plans], 1926.59 [Hazard Communication], and 1926.103 [Respiratory Protection], and other appropriate safety and health training made necessary by the tasks that they are expected to be performed such as personal protective equipment and decontamination procedures. All equipment to be used in the performance of the clean-up work shall be in serviceable condition and shall have been inspected prior to use.

Recordkeeping

1926.65(q)(1)—Emergency response plan. An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations. The plan shall be in writing and available for inspection and copying by employees, their representatives and OSHA personnel. Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan in accordance with 1926.35 [Employee Emergency Action Plans] of this part. [Reference paragraph (q)(2) for specific information.]

1926.65(q)(6)(ii)—First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in specific areas in addition to those listed for the awareness level and the employer shall so certify. [Reference paragraph (q)(6)(ii) for specific information.]

1926.65(q)(6)(iii)—Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iii) for specific information.]

1926.65(q)(6)(iv)—Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to
contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iv) for specific information.]

1926.65(q)(6)(v)—On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(v) for specific information.]

1926.65(q)(8)(ii)—A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

Certification

1926.65(q)(6)(ii)—First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in specific areas in addition to those listed for the awareness level and the employer shall so certify. [Reference paragraph (q)(6)(ii) for specific information.]

1926.65(q)(6)(iii)—Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iii) for specific information.]

1926.65(q)(6)(iv)—Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iv) for specific information.]

1926.65(q)(6)(v)—On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(v) for specific information.]

1926.65(q)(8)(ii)—A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

Training and Communications

1926.65(q)(4)—Skilled support personnel. Personnel, not necessarily an employer’s own employees, who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer’s own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this paragraph for the employer’s regular employees.
However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer’s own employees shall be used to assure the safety and health of these personnel.

1926.65(q)(5)—Specialist employees. Employees who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, and who will be called upon to provide technical advice or assistance at a hazardous substance release incident to the individual in charge, shall receive training or demonstrate competency in the area of their specialization annually.

1926.65(q)(6)—Training. Training shall be based on the duties and function to be performed by each responder of an emergency response organization. The skill and knowledge levels required for all new responders, those hired after the effective date of this standard, shall be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate, in emergency response, shall be given training in accordance with the following paragraphs:

1926.65(q)(6)(i)—First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in specific areas. [Reference paragraph (q)(6)(i) for specific information.]

1926.65(q)(6)(ii)—First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in specific areas in addition to those listed for the awareness level and the employer shall so certify. [Reference paragraph (q)(6)(ii) for specific information.]

1926.65(q)(6)(iii)—Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iii) for specific information.]

1926.65(q)(6)(iv)—Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iv) for specific information.]

1926.65(q)(6)(v)—On scene incident commander: Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(v) for specific information.]

1926.65(q)(7)—Trainers. Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.
1926.65(q)(8)(i)—Those employees who are trained in accordance with paragraph (q)(6) [Training] of this section shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.

1926.65(q)(11)(ii)—Where the clean-up is done on plant property using plant or workplace employees, such employees shall have completed the training requirements of the following: 29 CFR 1926.35 [Employee Emergency Action Plans], 1926.59 [Hazard Communication], and 1926.103 [Respiratory Protection], and other appropriate safety and health training made necessary by the tasks that they are expected to be performed such as personal protective equipment and decontamination procedures. All equipment to be used in the performance of the clean-up work shall be in serviceable condition and shall have been inspected prior to use.

Medical Surveillance

1926.65(q)(9)(i)—Members of an organized and designated HAZMAT team and hazardous materials specialists shall receive a baseline physical examination and be provided with medical surveillance as required in paragraph (f) [Medical Surveillance] of this section.

1926.65(q)(9)(ii)—Any emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency incident, either immediately or subsequently, shall be provided with medical consultation as required in paragraph (f)(3)(ii) [Medical Surveillance] of this section.

Competent Person

1926.65(q)(6)(ii)—First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in specific areas in addition to those listed for the awareness level and the employer shall so certify. [Reference paragraph (q)(6)(ii) for specific information.]

1926.65(q)(6)(iii)—Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iii) for specific information.]

1926.65(q)(6)(iv)—Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iv) for specific information.]

1926.65(q)(6)(v)—On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(v) for specific information.]

1926.65(q)(7)—Trainers. Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.
1926.65(q)(8)(i)—Those employees who are trained in accordance with paragraph (q)(6) [Training] of this section shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.

1926.65(q)(8)(ii)—A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

Qualified Person

1926.65(q)(5)—Specialist employees. Employees who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, and who will be called upon to provide technical advice or assistance at a hazardous substance release incident to the individual in charge, shall receive training or demonstrate competency in the area of their specialization annually.

1926.65(q)(6)(i)—First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in specific areas. [Reference paragraph (q)(6)(i) for specific information.]

1926.65(q)(6)(ii)—First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in specific areas in addition to those listed for the awareness level and the employer shall so certify. [Reference paragraph(q)(6)(ii) for specific information.]

1926.65(q)(6)(iii)—Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iii) for specific information.]

1926.65(q)(6)(iv)—Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(iv) for specific information.]

1926.65(q)(6)(v)—On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in specific areas and the employer shall so certify. [Reference paragraph (q)(6)(v) for specific information.]

1926.65(q)(7)—Trainers. Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.
1926.66—CRITERIA FOR DESIGN AND CONSTRUCTION OF SPRAY BOOTHS

Scope/Application: This section applies to the design and construction of spray booths.

STANDARD HIGHLIGHTS

- Inspections and Tests—filter rolls

Inspections and Tests

1926.66(b)(5)(i)—The spraying operations except electrostatic spraying operations shall be so designed, installed and maintain that the average air velocity over the open face of the booth (or booth cross section during spraying operations) shall be not less than 100 linear feet per minute. Electrostatic spraying operations may be conducted with an air velocity over the open face of the booth of not less than 60 linear feet per minute, or more, depending on the volume of the finishing material being applied and its flammability and explosion characteristics. Visible gauges or audible alarm or pressure activated devices shall be installed to indicate or insure that the required air velocity is maintained. Filter rolls shall be inspected to insure proper replacement of filter media.

1926.97—ELECTRICAL PROTECTIVE EQUIPMENT

Scope/Application: This section applies to electrical protective equipment.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—demonstrate
- Inspections and Tests—tests
- Recordkeeping—certify
- Certification—certify
- Signs, Markings and Tags—markings

Programs, Policies and Procedures

1926.97(c)(2)(vii)(C)—Any other class of glove may be used without protector gloves, under limited-use conditions, when small equipment and parts manipulation necessitate unusually high finger dexterity but only if the employer can demonstrate that the possibility of physical damage to the gloves is small and if the class of glove is one class higher than that required for the voltage involved.

Inspections and Tests

1926.97(a)(2)(i)—Equipment shall be capable of withstanding the ac proof-test voltage specified in Table E-1 or the dc proof-test voltage specified in Table E-2.

1926.97(a)(2)(iv)—Material used for Type II insulating equipment shall be capable of withstanding an ozone test, with no visible effects. The ozone test shall reliably indicate that the material will resist ozone exposure in actual use. Any visible signs of ozone deterioration of the material, such as checking, cracking, breaks, or pitting, is evidence of failure to meet the requirements for ozoneresistant material. (See the note following paragraph (a)(3)(ii)(B) [Workmanship and Finish] of this section.)

1926.97(a)(3)(i)—Equipment shall be free of physical irregularities that can adversely affect the insulating properties of the equipment and that can be detected by the tests or inspections required under this section.

1926.97(b)(2)(i)—Protective equipment used for the primary insulation of employees from energized circuit parts shall be capable of passing a current test when subjected to the highest nominal voltage on which the equipment is to be used.
1926.97(c)(2)(ii)—Insulating equipment shall be inspected for damage before each day’s use and immediately following any incident that can reasonably be suspected of causing damage. Insulating gloves shall be given an air test, along with the inspection.

1926.97(c)(2)(iv)—Insulating equipment found to have other defects that might affect its insulating properties shall be removed from service and returned for testing under paragraphs (c)(2)(viii) and (c)(2)(ix) [Specific Requirements] of this section.

1926.97(c)(2)(vii)(D)—Insulating gloves that have been used without protector gloves may not be reused until they have been tested under the provisions of paragraphs (c)(2)(viii) and (c)(2)(ix) [Specific Requirements] of this section.

1926.97(c)(2)(viii)—Electrical protective equipment shall be subjected to periodic electrical tests. Test voltages and the maximum intervals between tests shall be in accordance with Table E-4 [Rubber Insulating Equipment—Voltage Requirements] and Table E-5 [Rubber Insulating Equipment—Test Intervals].

1926.97(c)(2)(x)—Insulating equipment failing to pass inspections or electrical tests may not be used by employees, except as follows: [Reference (c)(2)(x) for specific requirements.]

1926.97(c)(2)(xi)—Repaired insulating equipment shall be retested before it may be used by employees.

1926.97(c)(2)(xii)—The employer shall certify that equipment has been tested in accordance with the requirements of paragraphs (c)(2)(iv), (c)(2)(vii)(D), (c)(2)(viii), (c)(2)(ix), and (c)(2)(xi) of this section. The certification shall identify the equipment that passed the test and the date it was tested and shall be made available upon request to the Assistant Secretary for Occupational Safety and Health and to employees or their authorized representatives.

Note to paragraph (c)(2)(xii): Marking equipment with, and entering onto logs, the results of the tests and the dates of testing are two acceptable means of meeting the certification requirement.

Recordkeeping

1926.97(c)(2)(xii)—The employer shall certify that equipment has been tested in accordance with the requirements of paragraphs (c)(2)(iv), (c)(2)(vii)(D), (c)(2)(viii), (c)(2)(ix), and (c)(2)(xi) of this section. The certification shall identify the equipment that passed the test and the date it was tested and shall be made available upon request to the Assistant Secretary for Occupational Safety and Health and to employees or their authorized representatives.

Note to paragraph (c)(2)(xii): Marking equipment with, and entering onto logs, the results of the tests and the dates of testing are two acceptable means of meeting the certification requirement.

Certification

1926.97(c)(2)(xii)—The employer shall certify that equipment has been tested in accordance with the requirements of paragraphs (c)(2)(iv), (c)(2)(vii)(D), (c)(2)(viii), (c)(2)(ix), and (c)(2)(xi) of this section. The certification shall identify the equipment that passed the test and the date it was tested and shall be made available upon request to the Assistant Secretary for Occupational Safety and Health and to employees or their authorized representatives.

Note to paragraph (c)(2)(xii): Marking equipment with, and entering onto logs, the results of the tests and the dates of testing are two acceptable means of meeting the certification requirement.
Signs, Markings and Tags

1926.97(a)(1)(ii)—Each item shall be clearly marked. [Reference paragraph (a)(1)(ii) for specific requirements.]

1926.97(a)(1)(ii)(I)—Other relevant markings, such as the manufacturer’s identification and the size of the equipment, may also be provided.

1926.97(a)(1)(iii)—Markings shall be nonconducting and shall be applied in such a manner as not to impair the insulating qualities of the equipment.

1926.97(a)(1)(iv)—Markings on gloves shall be confined to the cuff portion of the glove.

1926.97(c)(2)(xii)—The employer shall certify that equipment has been tested in accordance with the requirements of paragraphs (c)(2)(iv), (c)(2)(vii)(D), (c)(2)(viii), (c)(2)(ix), and (c)(2)(xi) of this section. The certification shall identify the equipment that passed the test and the date it was tested and shall be made available upon request to the Assistant Secretary for Occupational Safety and Health and to employees or their authorized representatives.

Note to paragraph (c)(2)(xii): Marking equipment with, and entering onto logs, the results of the tests and the dates of testing are two acceptable means of meeting the certification requirement.
29 CFR 1926 Subpart E—Personal Protective and Life Saving Equipment

1926.101—HEARING PROTECTION

Scope/Application: This section applies to hearing protective devices.

STANDARD HIGHLIGHTS

• Competent Person—ear protection devices

Competent Person

1926.101(b)—Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.

1926.103—RESPIRATORY PROTECTION

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at 29 CFR 1910.134 [Respiratory Protection] of this chapter. [See page 64.]
29 CFR Subpart F—Fire Protection and Prevention

1926.150—FIRE PROTECTION

Scope/Application: This section applies to fire protection.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—fire protection program
• Inspections and Tests—periodic inspections
• Recordkeeping—instructions
• Training and Communications—fire brigade, instructions posted
• Signs, Markings and Tags—standpipes marked

Programs, Policies and Procedures

1926.150(a)(1)—The employer shall be responsible for the development of a fire protection program to be followed throughout all phases of the construction and demolition work, and he shall provide for the firefighting equipment as specified in this subpart. As fire hazards occur, there shall be no delay in providing the necessary equipment.

Inspections and Tests

1926.150(a)(4)—All firefighting equipment shall be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced.

1926.150(c)(1)(viii)—Portable fire extinguishers shall be inspected periodically and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1970.

Recordkeeping

1926.150(e)(2)—The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.

Training and Communications

1926.150(a)(5)—As warranted by the project, the employer shall provide a trained and equipped firefighting organization (Fire Brigade) to assure adequate protection to life.

1926.150(e)(2)—The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.

Signs, Markings and Tags

1926.150(d)(2)—Standpipes. In all structures in which standpipes are required, or where standpipes exist in structures being altered, they shall be brought up as soon as applicable laws permit, and shall be maintained as construction progresses in such a manner that they are always ready for fire protection use. The standpipes shall be provided with Siamese fire department connections on the outside of the structure, at the street level, which shall be conspicuously marked. There shall be at least one standard hose outlet at each floor.

1926.150(e)(2)—The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.
1926.151—FIRE PREVENTION

Scope/Application: This section applies to fire prevention.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—regular procedures for periodic cleanup
• Signs, Markings and Tags—posted signs

Programs, Policies and Procedures

1926.151(c)(3)—The entire storage site shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular procedure provided for the periodic cleanup of the entire area.

Signs, Markings and Tags

1926.151(a)(3)—Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard, and shall be conspicuously posted: “No Smoking or Open Flame.”

1926.152—FLAMMABLE AND COMBUSTIBLE LIQUIDS

Scope/Application: This section applies to flammable and combustible liquids.

STANDARD HIGHLIGHTS

• Inspections and Tests—strength testing
• Recordkeeping—posted instructions
• Training and Communications—posted emergency instructions
• Signs, Markings and Tags—signs posted, cabinets labeled

Inspections and Tests

1926.152(i)(7)(i)—General. All tanks, whether shop built or field erected, shall be strength tested before they are placed in service in accordance with the applicable paragraphs of the code under which they were built. The American Society of Mechanical Engineers (ASME) code stamp, American Petroleum Institute (API) monogram, or the label of the Underwriters’ Laboratories, Inc., on a tank shall be evidence of compliance with this strength test. Tanks not marked in accordance with the above codes shall be strength tested before they are placed in service in accordance with good engineering principles and reference shall be made to the sections on testing in the codes listed in paragraphs (i)(1)(iii)(A), (iv)(B), or (v)(B) of this section.

Recordkeeping

1926.152(i)(5)(vi)(V)(2)—That detailed printed instructions of what to do in flood emergencies are properly posted.

Training and Communications

1926.152(i)(5)(vi)(V)(2)—That detailed printed instructions of what to do in flood emergencies are properly posted.

1926.152(i)(5)(vi)(V)(3)—That station operators and other employees depended upon to carry out such instructions are thoroughly informed as to the location and operation of such valves and other equipment necessary to effect these requirements.
Signs, Markings and Tags

1926.152(b)(2)(iii)—Cabinets shall be labeled in conspicuous lettering, “Flammable-Keep Fire Away.”

1926.152(g)(6)—Clearly identified and easily accessible switch(es) shall be provided at a location remote from dispensing devices to shut off the power to all dispensing devices in the event of an emergency.

1926.152(g)(9)—Conspicuous and legible signs prohibiting smoking shall be posted.

1926.152(i)(5)(vi)(V)(2)—That detailed printed instructions of what to do in flood emergencies are properly posted.

1926.152(i)(7)(i)—General. All tanks, whether shop built or field erected, shall be strength tested before they are placed in service in accordance with the applicable paragraphs of the code under which they were built. The American Society of Mechanical Engineers (ASME) code stamp, American Petroleum Institute (API) monogram, or the label of the Underwriters’ Laboratories, Inc., on a tank shall be evidence of compliance with this strength test. Tanks not marked in accordance with the above codes shall be strength tested before they are placed in service in accordance with good engineering principles and reference shall be made to the sections on testing in the codes listed in paragraphs (i)(1)(iii)(A), (iv)(B), or (v)(B) of this section.

1926.153—LIQUEFIED PETROLEUM GAS

Scope/Application: This section applies to liquefied petroleum gas.

STANDARD HIGHLIGHTS
• Inspections and Tests—tests

Inspections and Tests

1926.153(f)(2)—Any appliance that was originally manufactured for operation with a gaseous fuel other than LP-Gas, and is in good condition, may be used with LP-Gas only after it is properly converted, adapted, and tested for performance with LP-Gas before the appliance is placed in use.
29 CFR Subpart G—Signs, Signals and Barricades

1926.200—ACCIDENT PREVENTION SIGNS AND TAGS

**Scope/Application:** This section applies to accident prevention signs and tags.

**STANDARD HIGHLIGHTS**

- Signs, Markings and Tags—posted signs, accident prevention tags

**Signs, Markings and Tags**

1926.200(a)—General. *Signs and symbols* required by this subpart shall be visible at all times when work is being performed, and shall be removed or covered promptly when the hazards no longer exist.

1926.200(b)(1)—*Danger signs* (see Figure G-1) shall be used only where an immediate hazard exists. *[Reference paragraph (b)(2) for specific sign requirements.]*

1926.200(c)(1)—*Caution signs* (see Figure G-2) shall be used only to warn against potential hazards or to caution against unsafe practices. *[Reference paragraph (c)(2) and (c)(3) for specific sign requirements.]*

1926.200(g)(1)—Construction areas shall be posted with legible *traffic signs* at points of hazard. *[Reference paragraph (g)(2) for specific sign requirements.]*

1926.200(h)(1)—*Accident prevention tags* shall be used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. They shall not be used in place of, or as a substitute for, *accident prevention signs*. *[Reference paragraph (h)(2) for specific sign requirements.]*
29 CFR Subpart H—Materials Handling, Storage, Use and Disposal

1926.250—GENERAL REQUIREMENTS FOR STORAGE

Scope/Application: This section applies to material storage.

STANDARD HIGHLIGHTS

- Signs, Markings and Tags—load limits posted

Signs, Markings and Tags

1926.250(a)(2)—Maximum safe load limits of floors within buildings and structures, in pounds per square foot, shall be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads shall not be exceeded.

1926.251—RIGGING EQUIPMENT FOR MATERIAL HANDLING

Scope/Application: This section applies to slings used in conjunction with other material handling equipment for the movement of material by hoisting, in employments covered by this part. The types of slings covered are those made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope (conventional three strand construction), and synthetic web (nylon, polyester, and polypropylene).

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections conducted prior to use, each shift, annual, and periodic, proof tests, records
- Recordkeeping—inspection records
- Certification—proof test
- Competent Person—inspections
- Signs, Markings and Tags—proof-tested, identification, markings

Inspections and Tests

1926.251(a)(1)—Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service.

1926.251(a)(4)—Special custom design grabs, hooks, clamps, or other lifting accessories, for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested prior to use to 125 percent of their rated load.

1926.251(a)(6)—Inspections. Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

1926.251(b)(6)(i)—In addition to the inspection required by other paragraphs of this section, a thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis, to be determined on the basis of (A) frequency of sling use; (B) severity of service conditions; (C) nature of lifts being made; and (D) experience gained on the service life of slings used in similar circumstances. Such inspections shall in no event be at intervals greater than once every 12 months.

1926.251(c)(15)(ii)—All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The employer shall retain a certificate of proof test, and make it available for examination.

1926.251(f)(2)—The manufacturer’s recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer’s recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. The employer shall maintain a record of the dates and results of such tests.
Recordkeeping

1926.251(b)(6)(ii)—The employer shall make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected, and shall make such record available for examination.

1926.251(c)(15)(ii)—All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The employer shall retain a certificate of proof test, and make it available for examination.

1926.251(f)(2)—The manufacturer’s recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer’s recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. The employer shall maintain a record of the dates and results of such tests.

Certification

1926.251(c)(15)(ii)—All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The employer shall retain a certificate of proof test, and make it available for examination.

Competent Person

1926.251(a)(6)—Inspections. Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

Signs, Markings and Tags

1926.251(b)(1)—Welded alloy steel chain slings shall have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer.

1926.251(a)(4)—Special custom design grabs, hooks, clamps, or other lifting accessories, for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested prior to use to 125 percent of their rated load.

1926.252—DISPOSAL OF WASTE MATERIALS

Scope/Application: This section applies to disposal of waste materials.

STANDARD HIGHLIGHTS
- Signs, Markings and Tags—warning signs posted

Signs, Markings and Tags

1926.252(b)—When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.
1926.302—POWER-OPERATED HAND TOOLS

Scope/Application: This section applies to power-operated tools.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—procedure
- Inspections and Tests—daily tests
- Recordkeeping—manufacturer procedure
- Training and Communications—trained employees

Programs, Policies and Procedures

1926.302(e)(2)—The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer’s recommended procedure.

Inspections and Tests

1926.302(e)(2)—The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer’s recommended procedure.

Recordkeeping

1926.302(e)(2)—The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer’s recommended procedure.

Training and Communications

1926.302(e)(1)—Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool.

1926.303—ABRASIVE WHEELS AND TOOLS

Scope/Application: This section applies to abrasive wheels and tools.

STANDARD HIGHLIGHTS
- Inspections and Tests—ring tests, inspections before mounting

Inspections and Tests

1926.303(c)(7)—All abrasive wheels shall be closely inspected and ring-tested before mounting to ensure that they are free from cracks or defects.
1926.304—WOODWORKING TOOLS

**Scope/Application:** This section applies to all woodworking tools.

**STANDARD HIGHLIGHTS**
- Signs, Markings and Tags—markings

**Signs, Markings and Tags**

1926.304(b)—Speeds. The operating speed shall be etched or otherwise permanently marked on all circular saws over 20 inches in diameter or operating at over 10,000 peripheral feet per minute. Any saw so marked shall not be operated at a speed other than that marked on the blade. When a marked saw is retensioned for a different speed, the marking shall be corrected to show the new speed.

1926.305—JACKS—LEVER AND RATCHET, SCREW, AND HYDRAULIC

**Scope/Application:** This section applies to all jack-lever and ratchet, screw, and hydraulic tools.

**STANDARD HIGHLIGHTS**
- Inspections and Tests—inspections
- Signs, Markings and Tags—tagging, markings

**Inspections and Tests**

1926.305(d)(1)(iv)—Each jack shall be thoroughly inspected at times which depend upon the service conditions. Inspections shall be not less frequent than the following:

1926.305(d)(1)(iv)(a)—For constant or intermittent use at one locality, once every 6 months.

1926.305(d)(1)(iv)(b)—For jacks sent out of shop for special work, when sent out and when returned.

1926.305(d)(1)(iv)(c)—For a jack subjected to abnormal load or shock, immediately before and immediately thereafter.

**Signs, Markings and Tags**

1926.305(a)(1)—The manufacturer’s rated capacity shall be legibly marked on all jacks and shall not be exceeded.

1926.305(d)(1)(vi)—Jacks which are out of order shall be tagged accordingly, and shall not be used until repairs are made.
1926.306—AIR RECEIVERS

**Scope/Application:** This section applies to all air receivers.

**STANDARD HIGHLIGHTS**
- Inspections and Tests—frequent and regular intervals inspections

**Inspections and Tests**

1926.306(b)(3)(iv)—All safety valves *shall be tested frequently and at regular intervals* to determine whether they are in good operating condition.

1926.307—MECHANICAL POWER-TRANSMISSION APPARATUS

**Scope/Application:** This section applies to all mechanical power—transmission apparatuses.

**STANDARD HIGHLIGHTS**
- Inspections and Tests—periodic inspections

**Inspections and Tests**

1926.307(b)(1)(iv)—For flywheels with smooth rims 5 feet (1.52 m) or less in diameter, where the preceding methods cannot be applied, the following may be used: A disk attached to the flywheel in such manner as to cover the spokes of the wheel on the exposed side and present a smooth surface and edge, at the same time *providing means for periodic inspection*. An open space, not exceeding 4 inches (10.16 cm) in width, may be left between the outside edge of the disk and the rim of the wheel if desired, to facilitate turning the wheel over. Where a disk is used, the keys or other dangerous projections not covered by disk shall be cut off or covered. This subdivision does not apply to flywheel with solid web centers.

1926.307(p)(6)(ii)—*Inspection shall be made* of belts, lacings, and fasteners and such equipment kept in good repair.
29 CFR Subpart J—Welding and Cutting

1926.351—ARC WELDING AND CUTTING

Scope/Application: This section applies to arc welding and cutting.

STANDARD HIGHLIGHTS

• Inspections and Tests—inspections conducted beginning of work shift
• Training and Communications—employees instructed

Inspections and Tests

1926.350(f)(3)—All hose in use, carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite or enter into combustion, or be in any way harmful to employees, shall be inspected at the beginning of each working shift. Defective hose shall be removed from service.

1926.350(f)(4)—Hose which has been subject to flashback, or which shows evidence of severe wear or damage, shall be tested to twice the normal pressure to which it is subject, but in no case less than 300 p.s.i. Defective hose, or hose in doubtful condition, shall not be used.

1926.350(g)(2)—Torches in use shall be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used.

Training and Communications

1926.350(d)—Use of fuel gas. The employer shall thoroughly instruct employees in the safe use of fuel gas. [Reference paragraph (d) for specific requirements.]

1926.352—FIRE PREVENTION

Scope/Application: This section applies to fire prevention.

STANDARD HIGHLIGHTS

• Training and Communications—instructions, assignments

Training and Communications

1926.352(e)—When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to ensure that no possibility of fire exists. Such personnel shall be instructed as to the specific anticipated fire hazards and how the firefighting equipment provided is to be used.
**1926.353—VENTILATION AND PROTECTION IN WELDING, CUTTING, AND HEATING**

*Scope/Application:* This section applies to ventilation and protection in welding, cutting, and heating.

**STANDARD HIGHLIGHTS**

- **Training and Communications**—assigned personnel for communications

### Training and Communications

**1926.353(b)(2)**—When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space shall be protected by air line respirators in accordance with the requirements of subpart E (Personal Protective Equipment and Life Saving Equipment) of this part, and an employee on the outside of such a confined space shall be assigned to maintain communication with those working within it and to aid them in an emergency.

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**1926.354—WELDING, CUTTING, AND HEATING IN WAY OF PRESERVATIVE COATINGS**

*Scope/Application:* This section applies to welding, cutting, and heating in way of preservative coatings.

**STANDARD HIGHLIGHTS**

- **Inspections and Tests**—tests by competent person
- **Competent Person**—tests

### Inspections and Tests

**1926.354(a)**—Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.

### Competent Person

**1926.354(a)**—Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.
29 CFR Subpart K—Electrical

1926.403—GENERAL REQUIREMENTS

Scope/Application: These sections apply to installations, both temporary and permanent, used on the jobsite; but these sections do not apply to existing permanent installations that were in place before the construction activity commenced.

Installation safety requirements are contained in 1926.402 through 1926.408. Included in this category are electric equipment and installations used to provide electric power and light on jobsites.

Exception: Not covered. Sections 1926.402 through 1926.408 do not cover installations used for the generation, transmission, and distribution of electric energy, including related communication, metering, control, and transformation installations. (However, these regulations do cover portable and vehicle-mounted generators used to provide power for equipment used at the jobsite.) See subpart V [Power Transmission and Distribution] of this part for the construction of power distribution and transmission lines.

STANDARD HIGHLIGHTS
- Recordkeeping—certification
- Certification—equipment
- Signs, Markings and Tags—labeling, certification, markings

Recordkeeping

1926.403(b)(1)(i)—Suitability for installation and use in conformity with the provisions of this subpart. Suitability of equipment for an identified purpose may be evidenced by listing, labeling, or certification for that identified purpose.

Certification

1926.403(b)(1)(i)—Suitability for installation and use in conformity with the provisions of this subpart. Suitability of equipment for an identified purpose may be evidenced by listing, labeling, or certification for that identified purpose.

Signs, Markings and Tags

1926.403(b)(1)(i)—Suitability for installation and use in conformity with the provisions of this subpart. Suitability of equipment for an identified purpose may be evidenced by listing, labeling, or certification for that identified purpose.

1926.404—WIRING DESIGN AND PROTECTION

Scope/Application: These sections apply to installations, both temporary and permanent, used on the jobsite; but these sections do not apply to existing permanent installations that were in place before the construction activity commenced.

Installation safety requirements are contained in 1926.402 through 1926.408. Included in this category are electric equipment and installations used to provide electric power and light on jobsites.
Exception: Not covered. Sections 1926.402 through 1926.408 [Electrical] do not cover installations used for the generation, transmission, and distribution of electric energy, including related communication, metering, control, and transformation installations. (However, these regulations do cover portable and vehicle-mounted generators used to provide power for equipment used at the jobsite.) See subpart V [Power Transmission and Distribution] of this part for the construction of power distribution and transmission lines.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—written assured grounding program
- Inspections and Tests—tests, visual inspections, inspections daily, quarterly, before use
- Recordkeeping—test records
- Competent Person—designated competent person
- Signs, Markings and Tags—posting, markings

Programs, Policies and Procedures

1926.404(b)(1)(i)—General. The employer shall use either ground fault circuit interrupters as specified in paragraph (b)(1)(ii) [Ground Fault Circuit Interrupters] of this section or an assured equipment grounding conductor program as specified in paragraph (b)(1)(iii) [Assured Equipment Grounding Conductor Program] of this section to protect employees on construction sites. These requirements are in addition to any other requirements for equipment grounding conductors.

1926.404(b)(1)(iii)—Assured equipment grounding conductor program. The employer shall establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. This program shall comply with the following minimum requirements:

1926.404(b)(1)(iii)(A)—A written description of the program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary and any affected employee.

Inspections and Tests

1926.404(b)(1)(iii)(C)—Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day’s use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired.

1926.404(b)(1)(iii)(D)—The following tests shall be performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord and plug-connected equipment required to be grounded:

1926.404(b)(1)(iii)(D)(1)—All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.

1926.404(b)(1)(iii)(D)(2)—Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

1926.404(b)(1)(iii)(E)—All required tests shall be performed:

1926.404(b)(1)(iii)(E)(1)—Before first use;

1926.404(b)(1)(iii)(E)(2)—Before equipment is returned to service following any repairs;

1926.404(b)(1)(iii)(E)(3)—Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over); and
1926.404(b)(1)(iii)(E)(4)—At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.

Recordkeeping

1926.404(b)(1)(iii)—Tests performed as required in this paragraph shall be recorded. This test record shall identify each receptacle, cord set, and cord and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection by the Assistant Secretary and any affected employee.

1926.404(b)(1)(iii)(A)—A written description of the program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary and any affected employee.

Competent Person

1926.404(b)(1)(iii)(B)—The employer shall designate one or more competent persons (as defined in 1926.32(f)) to implement the program.

Signs, Markings and Tags

1926.404(d)(2)(ii)—Warning signs. Signs warning of high voltage shall be posted where unauthorized employees might come in contact with live parts.

1926.404(e)(1)(vi)(C)—If used as switches in 120-volt, fluorescent lighting circuits, circuit breakers shall be marked “SWD.”

1926.404(f)(7)(iv)(C)(6)—Tools likely to be used in wet and/or conductive locations need not be grounded if supplied through an isolating transformer with an ungrounded secondary of not over 50 volts. Listed or labeled portable tools and appliances protected by a system of double insulation, or its equivalent, need not be grounded. If such a system is employed, the equipment shall be distinctively marked to indicate that the tool or appliance utilizes a system of double insulation.

1926.408—SPECIAL SYSTEMS

Scope/Application: These sections apply to installations, both temporary and permanent, used on the jobsite; but these sections do not apply to existing permanent installations that were in place before the construction activity commenced.

Exception: Not covered. Sections 1926.402 through 1926.408 [Electrical] do not cover installations used for the generation, transmission, and distribution of electric energy, including related communication, metering, control, and transformation installations. (However, these regulations do cover portable and vehicle-mounted generators used to provide power for equipment used at the jobsite.) See subpart V [Power Transmission and Distribution] of this part for the construction of power distribution and transmission lines.

STANDARD HIGHLIGHTS

• Qualified Person—authorized qualified person
• Signs, Markings and Tags—posted warning signs

Qualified Person

1926.408(a)(1)(i)—Above ground. Above-ground conductors shall be installed in rigid metal conduit, in intermediate metal conduit, in cable trays, in cablebus, in other suitable raceways, or as open runs of metal-clad cable designed for the use and purpose. However, open runs of non-metallic-sheathed cable or of bare conductors or busbars may be installed in locations which are accessible only to qualified persons. Metallic shielding components, such as tapes, wires, or braids for conductors, shall be grounded. Open runs of insulated wires and cables having a bare lead sheath or a braided outer covering shall be supported in a manner designed to prevent physical damage to the braid or sheath.
1926.408(a)(2)(i)—Circuit breakers. Circuit breakers located indoors shall consist of metal-enclosed or fire-resistant, cell-mounted units. In locations accessible only to qualified personnel, open mounting of circuit breakers is permitted. A means of indicating the open and closed position of circuit breakers shall be provided.

1926.408(a)(3)(i)—Power cable connections to mobile machines. A metallic enclosure shall be provided on the mobile machine for enclosing the terminals of the power cable. The enclosure shall include provisions for a solid connection for the ground wire(s) terminal to ground effectively the machine frame. The method of cable termination used shall prevent any strain or pull on the cable from stressing the electrical connections. The enclosure shall have provision for locking so only authorized qualified persons may open it and shall be marked with a sign warning of the presence of energized parts.

1926.408(a)(3)(ii)—Guarding live parts. All energized switching and control parts shall be enclosed in effectively grounded metal cabinets or enclosures. Circuit breakers and protective equipment shall have the operating means projecting through the metal cabinet or enclosure so these units can be reset without locked doors being opened. Enclosures and metal cabinets shall be locked so that only authorized qualified persons have access and shall be marked with a sign warning of the presence of energized parts. Collector ring assemblies on revolving-type machines (shovels, draglines, etc.) shall be guarded.

Signs, Markings and Tags

1926.408(a)(2)(iii)—Equipment isolating means. A means shall be provided to completely isolate equipment for inspection and repairs. Isolating means which are not designed to interrupt the load current of the circuit shall be either interlocked with a circuit interrupter or provided with a sign warning against opening them under load.

1926.408(a)(3)(i)—Power cable connections to mobile machines. A metallic enclosure shall be provided on the mobile machine for enclosing the terminals of the power cable. The enclosure shall include provisions for a solid connection for the ground wire(s) terminal to ground effectively the machine frame. The method of cable termination used shall prevent any strain or pull on the cable from stressing the electrical connections. The enclosure shall have provision for locking so only authorized qualified persons may open it and shall be marked with a sign warning of the presence of energized parts.

1926.408(a)(3)(ii)—Guarding live parts. All energized switching and control parts shall be enclosed in effectively grounded metal cabinets or enclosures. Circuit breakers and protective equipment shall have the operating means projecting through the metal cabinet or enclosure so these units can be reset without locked doors being opened. Enclosures and metal cabinets shall be locked so that only authorized qualified persons have access and shall be marked with a sign warning of the presence of energized parts. Collector ring assemblies on revolving-type machines (shovels, draglines, etc.) shall be guarded.

1926.416—GENERAL REQUIREMENTS

Scope/Application: Safety-related work practices are contained in 1926.416 and 1926.417. In addition to covering the hazards arising from the use of electricity at jobsites, these regulations also cover the hazards arising from the accidental contact, direct or indirect, by employees with all energized lines, above or below ground, passing through or near the jobsite.

STANDARD HIGHLIGHTS

• Training and Communications—advise employees
• Signs, Markings and Tags—posting warning signs

Training and Communications

1926.416(a)(3)—Before work is begun the employer shall ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The employer shall post and maintain proper warning signs where such a circuit exists. The employer shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.
Signs, Markings and Tags

1926.416(a)(3)—Before work is begun the employer shall ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The employer shall post and maintain proper warning signs where such a circuit exists. The employer shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

1926.417—LOCKOUT AND TAGGING OF CIRCUITS

Scope/Application: Safety-related work practices are contained in 1926.416 and 1926.417. In addition to covering the hazards arising from the use of electricity at jobsites, these regulations also cover the hazards arising from the accidental contact, direct or indirect, by employees with all energized lines, above or below ground, passing through or near the jobsite.

STANDARD HIGHLIGHTS

• Signs, Markings and Tags—tags

Signs, Markings and Tags

1926.417(a)—Controls. Controls that are to be deactivated during the course of work on energized or deenergized equipment or circuits shall be tagged.

1926.417(b)—Equipment and circuits. Equipment or circuits that are deenergized shall be rendered inoperative and shall have tags attached at all points where such equipment or circuits can be energized.

1926.417(c)—Tags. Tags shall be placed to identify plainly the equipment or circuits being worked on.


29 CFR Subpart L—Scaffolds

1926.451—GENERAL REQUIREMENTS

Scope/Application: This section applies to all scaffolds used in workplaces covered by this part.

Exception: It does not apply to crane or derrick suspended personnel platforms. The criteria for aerial lifts are set out exclusively in Sec. 1926.453 [Aerial Lifts].

STANDARD HIGHLIGHTS
- Inspections and Tests—evaluations, competent person, inspected every occurrence and workshift
- Recordkeeping—design
- Training and Communications—trained employees
- Competent Person—inspections, evaluations
- Qualified Person—engineer designs

Inspections and Tests

1926.451(b)(11)—Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component to a level below that required by paragraph (a)(1) [Capacity] of this section.

1926.451(d)(3)(i)—Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed. In addition, masons’ multi-point adjustable suspension scaffold connections shall be designed by an engineer experienced in such scaffold design.

1926.451(d)(10)—Ropes shall be inspected for defects by a competent person prior to each workshift and after every occurrence which could affect a rope’s integrity.

1926.451(d)(12)(iv)—Clips shall be inspected and retightened to the manufacturer’s recommendations at the start of each workshift thereafter.

1926.451(d)(13)—Suspension scaffold power-operated hoists and manual hoists shall be tested by a qualified testing laboratory.

1926.451(d)(18)—Two-point and multi-point suspension scaffolds shall be tied or otherwise secured to prevent them from swaying, as determined to be necessary based on an evaluation by a competent person. Window cleaners’ anchors shall not be used for this purpose.

1926.451(e)(9)(i)—The employer shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The employer shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.

1926.451(f)(3)—Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold’s structural integrity.

1926.451(f)(12)—Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

1926.451(g)(2)—Effective September 2, 1997, the employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Employers are required to
provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

1926.451(g)(4)(xiv)—Manila or plastic (or other synthetic) rope being used for top rails or midrails shall be inspected by a competent person as frequently as necessary to ensure that it continues to meet the strength requirements of paragraph (g) [Fall Protection] of this section.

Recordkeeping

1926.451(d)(3)(i)—Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed. In addition, masons’ multi-point adjustable suspension scaffold connections shall be designed by an engineer experienced in such scaffold design.

1926.451(d)(12)(iv)—Clips shall be inspected and retightened to the manufacturer’s recommendations at the start of each workshift thereafter.

Training and Communications

1926.451(f)(7)—Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

Competent Person

1926.451(b)(10)—Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold’s structural integrity is maintained by the user. Scaffold components manufactured by different manufacturers shall not be modified in order to intermix them unless a competent person determines the resulting scaffold is structurally sound.

1926.451(b)(11)—Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component to a level below that required by paragraph (a)(1) [Capacity] of this section.

1926.451(d)(3)(i)—Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed. In addition, masons’ multi-point adjustable suspension scaffold connections shall be designed by an engineer experienced in such scaffold design.

1926.451(d)(10)—Ropes shall be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a rope’s integrity.

1926.451(d)(18)—Two-point and multi-point suspension scaffolds shall be tied or otherwise secured to prevent them from swaying, as determined to be necessary based on an evaluation by a competent person. Window cleaners’ anchors shall not be used for this purpose.

1926.451(e)(9)(i)—The employer shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The employer shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.

1926.451(f)(3)—Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold’s structural integrity.
1926.451(f)(7)—Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

1926.451(f)(12)—Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

1926.451(g)(2)—Effective September 2, 1997, the employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Employers are required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

1926.451(g)(4)(xiv)—Manila or plastic (or other synthetic) rope being used for toprails or midrails shall be inspected by a competent person as frequently as necessary to ensure that it continues to meet the strength requirements of paragraph (g) [Fall Protection] of this section.

Qualified Person

1926.451(d)(3)(i)—Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed. In addition, masons’ multi-point adjustable suspension scaffold connections shall be designed by an engineer experienced in such scaffold design.

1926.452—ADDITIONAL REQUIREMENTS APPLICABLE TO SPECIFIC TYPES OF SCAFFOLDS

Scope/Application: This section applies to all scaffolds used in workplaces covered by this part. In addition to the applicable requirements of 1926.451 [General Requirements], the following requirements apply to the specific types of scaffolds indicated. Scaffolds not specifically addressed by 1926.452 [Additional Requirements Applicable to Specific Types of Scaffolds], such as but not limited to systems scaffolds, must meet the requirements of 1926.451 [General Requirements].

Exception: It does not apply to crane or derrick suspended personnel platforms. The criteria for aerial lifts are set out exclusively in Sec. 1926.453 [Aerial Lifts].

STANDARD HIGHLIGHTS

- Inspections and Tests—before erection
- Recordkeeping—manufacturer approval
- Qualified Person—designs, registered professional engineer

Inspections and Tests

1926.452(p)(4)—Platforms shall be of the ladder-type, plank-type, beam-type, or light-metal type. Light metal-type platforms having a rated capacity of 750 pounds or less and platforms 40 feet (12.2 m) or less in length shall be tested and listed by a nationally recognized testing laboratory.

1926.452(t)(2)—Interior hung scaffolds—Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the scaffold is erected.

1926.452(w)(6)(ii)—The height to base width ratio of the scaffold during movement is two to one or less, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements such as those listed in paragraph (x) [Repair Bracket Scaffolds] of Appendix A [Scaffold Specifications] to this subpart (ANSI/SIA A92.5 and A92.6).
Recordkeeping

1926.452(a)(10)—Pole scaffolds over 60 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with that design. Non-mandatory Appendix A [Scaffold Specifications] to this subpart contains examples of criteria that will enable an employer to comply with design and loading requirements for pole scaffolds under 60 feet in height.

1926.452(b)(10)—Tube and coupler scaffolds over 125 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design. Non-mandatory Appendix A [Scaffold Specifications] to this subpart contains examples of criteria that will enable an employer to comply with design and loading requirements for tube and coupler scaffolds under 125 feet in height.

1926.452(c)(5)(iii)—Fabricated frame scaffolds. Be used only to support personnel, unless the scaffold has been designed for other loads by a qualified engineer and built to withstand the tipping forces caused by those other loads being placed on the bracket-supported section of the scaffold.

1926.452(c)(6)—Fabricated frame scaffolds. Scaffolds over 125 feet (38.0 m) in height above their base plates shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.

1926.452(i)(8)—Outrigger scaffolds. Scaffolds and scaffold components shall be designed by a registered professional engineer and shall be constructed and loaded in accordance with such design.

1926.452(o)(2)(i)—Single-point adjustable suspension scaffolds. The rigging has been designed by a qualified person.

1926.452(p)(1)—Two-point adjustable suspension scaffolds (swing stages). Platforms shall not be more than 36 inches (0.9 m) wide unless designed by a qualified person to prevent unstable conditions.

1926.452(y)(4)—Stilts shall be properly maintained. Any alteration of the original equipment shall be approved by the manufacturer.

Qualified Person

1926.452(a)(10)—Pole scaffolds over 60 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with that design. Non-mandatory Appendix A [Scaffold Specifications] to this subpart contains examples of criteria that will enable an employer to comply with design and loading requirements for pole scaffolds under 60 feet in height.

1926.452(b)(10)—Tube and coupler scaffolds over 125 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design. Non-mandatory Appendix A [Scaffold Specifications] to this subpart contains examples of criteria that will enable an employer to comply with design and loading requirements for tube and coupler scaffolds under 125 feet in height.

1926.452(c)(5)(iii)—Fabricated frame scaffolds. Be used only to support personnel, unless the scaffold has been designed for other loads by a qualified engineer and built to withstand the tipping forces caused by those other loads being placed on the bracket-supported section of the scaffold.

1926.452(c)(6)—Fabricated frame scaffolds. Scaffolds over 125 feet (38.0 m) in height above their base plates shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.

1926.452(i)(8)—Outrigger scaffolds. Scaffolds and scaffold components shall be designed by a registered professional engineer and shall be constructed and loaded in accordance with such design.

1926.452(o)(2)(i)—Single-point adjustable suspension scaffolds. The rigging has been designed by a qualified person.
1926.452(p)(1)—Two-point adjustable suspension scaffolds (swing stages). Platforms shall not be more than 36 inches (0.9 m) wide unless designed by a qualified person to prevent unstable conditions.

1926.453—AERIAL LIFTS

Scope/Application: The criteria for aerial lifts are set out exclusively in § 1926.453—Aerial Lifts.

STANDARD HIGHLIGHTS

• Inspections and Tests—tested each day and prior to use
• Certification—written by manufacturer
• Qualified Person—authorized person

Inspections and Tests

1926.453(b)(2)(i)—Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

Certification

1926.453(a)(2)—Aerial lifts may be “field modified” for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

Qualified Person

1926.453(b)(2)(ii)—Only authorized persons shall operate an aerial lift.

1926.454—TRAINING REQUIREMENTS

Scope/Application: This section supplements and clarifies the requirements of Sec. 1926.21(b)(2) [Safety Training and Education] as these relate to the hazards of work on scaffolds.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—procedures
• Inspections and Tests—inspection
• Training and Communications—initial and retraining, competent person
• Competent Person—trained by
• Qualified Person—trained by

Programs, Policies and Procedures

1926.454(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. [Reference paragraph (a) for specific training requirements.]

Inspections and Tests

1926.454(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. [Reference paragraph (b) for specific training requirements.]
Training and Communications

1926.454(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. [Reference paragraph (a) for specific training requirements.]

1926.454(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. [Reference paragraph (b) for specific training requirements.]

1926.454(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. Retraining is required in at least the following situations:

1926.454(c)(1)—Where changes at the worksite present a hazard about which an employee has not been previously trained.

1926.454(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.

1926.454(c)(3)—Where inadequacies in an affected employee’s work involving scaffolds indicate that the employee has not retained the requisite proficiency.

Competent Person

1926.454(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. [Reference paragraph (b) for specific training requirements.]

Qualified Person

1926.454(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. [Reference paragraph (a) for specific training requirements.]
29 CFR Subpart M—Fall Protection

1926.501—DUTY TO HAVE FALL PROTECTION

Scope/Application: This section sets forth requirements for employers to provide fall protection systems in construction workplaces covered under 29 CFR Part 1926. All fall protection required by this section shall conform to the criteria set forth in 1926.502 [Fall Protection Systems Criteria and Practices] of this subpart.

Exception: The provisions of this subpart do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—fall protection plan

Programs, Policies and Procedures

1926.501(b)(2)(i)—Leading edges. Each employee who is constructing a leading edge 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems. Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of paragraph (k) [Fall Protection Plan] of 1926.502 [Fall Protection Systems Criteria and Practices].

Note: There is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. Accordingly, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with 1926.502(k) for a particular workplace situation, in lieu of implementing any of those systems.

1926.501(b)(12)—Precast concrete erection. Each employee engaged in the erection of precast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof “tees”) and related operations such as grouting of precast concrete members, who is 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems, unless another provision in paragraph (b) of this section provides for an alternative fall protection measure. Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of paragraph (k) [Fall Protection Plan] of 1926.502 [Fall Protection Systems Criteria and Practices].

Note: There is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. Accordingly, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with 1926.502(k) for a particular workplace situation, in lieu of implementing any of those systems.

1926.501(b)(13)—Residential construction. Each employee engaged in residential construction activities 6 feet (1.8 m) or more above lower levels shall be protected by guardrail systems, safety net system, or personal fall arrest system unless another provision in paragraph (b) of this section provides for an alternative fall protection measure. Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of paragraph (k) [Fall Protection Plan] of 1926.502 [Fall Protection Systems Criteria and Practices].

Note: There is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. Accordingly, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with paragraph (k) [Fall Protection Plan] of 1926.502 [Fall Protection Systems Criteria and Practices] for a particular workplace situation, in lieu of implementing any of those systems.
**Scope/Application:** This section sets forth requirements for employers to provide fall protection systems in construction workplaces covered under 29 CFR Part 1926. All fall protection required by this section shall conform to the criteria set forth in 1926.502 [Fall Protection Systems Criteria and Practices] of this subpart. Fall protection systems required by this part shall comply with the applicable provisions of this section.

### STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—fall protection plan, monitoring system, incident investigations
- Inspections and Tests—prior to use, weekly, and frequent inspections, competent person
- Recordkeeping—certification record, kept at site, competent person
- Certification—records
- Competent Person—certification record, inspections
- Qualified Person—fall protection plan

### Programs, Policies, and Procedures

**1926.502(k)—Fall protection plan.** This option is available only to employees engaged in leading edge work, precast concrete erection work, or residential construction work (See 1926.501(b)(2), (b)(12), and (b)(13) [Fall Protection Plan]) who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment. The fall protection plan must conform to specific provisions. [Reference paragraph (k) for specific provisions.]

**1926.502(k)(3)—A copy of the fall protection plan with all approved changes shall be maintained at the job site.**

**1926.502(k)(8)—Where no other alternative measure has been implemented, the employer shall implement a safety monitoring system in conformance with 1926.502(h) [Safety Monitoring Systems].**

**1926.502(k)(10)—In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.**

### Inspections and Tests

**1926.502(b)(15)—Manila, plastic or synthetic rope being used for top rails or midrails shall be inspected as frequently as necessary to ensure that it continues to meet the strength requirements of paragraph (b)(3) [Guardrail Systems] of this section.**

**1926.502(c)(4)(ii)—When the employer can demonstrate that it is unreasonable to perform the drop-test required by paragraph (c)(4)(ii) [Safety Net Systems] of this section, the employer (or a designated competent person) shall certify that the net and net installation is in compliance with the provisions of paragraphs (c)(3) and (c)(4)(i) [Safety Net Systems] of this section by preparing a certification record prior to the net being used as a fall protection system. The certification record must include an identification of the net and net installation for which the certification record is being prepared; the date that it was determined that the identified net and net installation were in compliance with paragraph (c)(3) [Safety Net Systems] of this section and the signature of the person making the determination and certification. The most recent certification record for each net and net installation shall be available at the jobsite for inspection.**

**1926.502(c)(5)—Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. Defective components shall be removed from service. Safety nets shall also be inspected after any occurrence which could affect the integrity of the safety net system.**

**1926.502(d)(19)—Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.**
1926.502(d)(21)—Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.

1926.502(e)(9)—Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.

1926.502(k)(10)—In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.

Recordkeeping

1926.502(b)(15)—When the employer can demonstrate that it is unreasonable to perform the drop-test required by paragraph (c)(4)(i) [Safety Net Systems] of this section, the employer (or a designated competent person) shall certify that the net and net installation is in compliance with the provisions of paragraphs (c)(3) and (c)(4)(i) [Safety Net Systems] of this section by preparing a certification record prior to the net being used as a fall protection system. The certification record must include an identification of the net and net installation for which the certification record is being prepared; the date that it was determined that the identified net and net installation were in compliance with paragraph (c)(3) [Safety Net Systems] of this section and the signature of the person making the determination and certification. The most recent certification record for each net and net installation shall be available at the jobsite for inspection.

1926.502(k)(1)—The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date.

1926.502(k)(3)—A copy of the fall protection plan with all approved changes shall be maintained at the job site.

Certification

1926.502(c)(4)(ii)—When the employer can demonstrate that it is unreasonable to perform the drop-test required by paragraph (c)(4)(i) [Safety Net Systems] of this section, the employer (or a designated competent person) shall certify that the net and net installation is in compliance with the provisions of paragraphs (c)(3) and (c)(4)(i) [Safety Net Systems] of this section by preparing a certification record prior to the net being used as a fall protection system. The certification record must include an identification of the net and net installation for which the certification record is being prepared; the date that it was determined that the identified net and net installation were in compliance with paragraph (c)(3) [Safety Net Systems] of this section and the signature of the person making the determination and certification. The most recent certification record for each net and net installation shall be available at the jobsite for inspection.

Competent Person

1926.502(b)(15)—When the employer can demonstrate that it is unreasonable to perform the drop-test required by paragraph (c)(4)(i) [Safety Net Systems] of this section, the employer (or a designated competent person) shall certify that the net and net installation is in compliance with the provisions of paragraphs (c)(3) and (c)(4)(i) [Safety Net Systems] of this section by preparing a certification record prior to the net being used as a fall protection system. The certification record must include an identification of the net and net installation for which the certification record is being prepared; the date that it was determined that the identified net and net installation were in compliance with paragraph (c)(3) [Safety Net Systems] of this section and the signature of the person making the determination and certification. The most recent certification record for each net and net installation shall be available at the jobsite for inspection.

1926.502(d)(19)—Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.
1926.502(h)(1)—The employer shall designate a competent person to monitor the safety of other employees and the employer shall ensure that the safety monitor complies with specific requirements. [Reference paragraph (h)(1) for specific requirements.]

1926.502(k)(4)—The implementation of the fall protection plan shall be under the supervision of a competent person.

Qualified Person

1926.502(k)(1)—The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date.

1926.502(k)(2)—Any changes to the fall protection plan shall be approved by a qualified person.

1926.503—TRAINING REQUIREMENTS

Scope/Application: This section sets forth requirements for employers to provide fall protection systems in construction workplaces covered under 29 CFR Part 1926. The following training provisions supplement and clarify the requirements of 1926.21 [Safety Training and Education] regarding the hazards addressed in subpart M [Fall Protection] of this part.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—training program
- Recordkeeping—retention requirements, records
- Certification—training record
- Training and Communications—training program, initial, retraining
- Competent Person—training

Programs, Policies, and Procedures

1926.503(a)(1)—The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.

Recordkeeping

1926.503(b)(1)—The employer shall verify compliance with paragraph (a) [Training Program] of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.

1926.503(b)(2)—The latest training certification shall be maintained.

Certification

1926.503(b)(1)—The employer shall verify compliance with paragraph (a) [Training Program] of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.

1926.503(b)(2)—The latest training certification shall be maintained.
Training and Communications

1926.503(a)(1)—The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.

1926.503(a)(2)—The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the following areas. [Reference paragraph (a)(2) for specific provisions.]

1926.503(b)(1)—The employer shall verify compliance with paragraph (a) [Training Program] of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.

1926.503(c)—Retraining. 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 (a) [Training Program] of this section, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where: [Reference paragraph (c) for specific information.]

Competent Person

1926.503(a)(2)—The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the specific areas: [Reference paragraph (a)(2) for specific provisions.]
29 CFR Subpart N—Helicopters, Hoists, Elevators, and Conveyors

1926.551—HELICOPTERS

Scope/Application: This section sets forth helicopter regulations. Helicopter cranes shall be expected to comply with any applicable regulations of the Federal Aviation Administration.

STANDARD HIGHLIGHTS

- Inspections and Tests—prior to each day’s operations
- Training and Communications—briefings conducted daily
- Qualified Person—responsibilities for operator, designated employee

Inspections and Tests

1926.551(d)—Cargo hooks. All electrically operated cargo hooks shall have the electrical activating device so designed and installed as to prevent inadvertent operation. In addition, these cargo hooks shall be equipped with an emergency mechanical control for releasing the load. The hooks shall be tested prior to each day’s operation to determine that the release functions properly, both electrically and mechanically.

Training and Communications

1926.551(b)—Briefing. Prior to each day’s operation a briefing shall be conducted. This briefing shall set forth the plan of operation for the pilot and ground personnel.

1926.551(n)—Signal systems. Signal systems between aircrew and ground personnel shall be understood and checked in advance of hoisting the load. This applies to either radio or hand signal systems.

1926.551(r)—Communications. There shall be constant reliable communication between the pilot, and a designated employee of the ground crew who acts as a signalman during the period of loading and unloading. This signalman shall be distinctly recognizable from other ground personnel.

Qualified Person

1926.551(h)—Operator responsibility. The helicopter operator shall be responsible for size, weight, and manner in which loads are connected to the helicopter. If, for any reason, the helicopter operator believes the lift cannot be made safely, the lift shall not be made.

1926.551(r)—Communications. There shall be constant reliable communication between the pilot, and a designated employee of the ground crew who acts as a signalman during the period of loading and unloading. This signalman shall be distinctly recognizable from other ground personnel.

1926.552—MATERIAL HOISTS, PERSONNEL HOISTS, AND ELEVATORS

Scope/Application: This section sets forth regulations pertaining to material hoists, personnel hoists, and elevators.

STANDARD HIGHLIGHTS

- Inspections and Tests—weekly, prior to use, quarterly, records
- Recordkeeping—maintain records
- Certification—records
- Competent Person—supervision
- Qualified Person—professional engineer
- Signs, Markings and Tags—posting rules, instructions
Inspections and Tests

1926.552(c)(15)—Following assembly and erection of hoists, and before being put in service, an inspection and test of all functions and safety devices shall be made under the supervision of a competent person. A similar inspection and test is required following major alteration of an existing installation. All hoists shall be inspected and tested at not more than 3-month intervals. The employer shall prepare a certification record which includes the date the inspection and test of all functions and safety devices was performed; the signature of the person who performed the inspection and test; and a serial number, or other identifier, for the hoist that was inspected and tested. The most recent certification record shall be maintained on file.

1926.552(c)(17)(iii)—These hoists shall be inspected and maintained on a weekly basis. Whenever the hoisting equipment is exposed to winds exceeding 35 miles per hour it shall be inspected and put in operable condition before reuse.


Recordkeeping

1926.552(a)(1)—The employer shall comply with the manufacturer’s specifications and limitations applicable to the operation of all hoists and elevators. Where manufacturer’s specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a professional engineer competent in the field.

1926.552(a)(2)—Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be posted on cars and platforms.

1926.552(b)(1)(ii)—Operating rules shall be established and posted at the operator’s station of the hoist. Such rules shall include signal system and allowable line speed for various loads. Rules and notices shall be posted on the car frame or crosshead in a conspicuous location, including the statement “No Riders Allowed.”

1926.552(c)(15)—Following assembly and erection of hoists, and before being put in service, an inspection and test of all functions and safety devices shall be made under the supervision of a competent person. A similar inspection and test is required following major alteration of an existing installation. All hoists shall be inspected and tested at not more than 3-month intervals. The employer shall prepare a certification record which includes the date the inspection and test of all functions and safety devices was performed; the signature of the person who performed the inspection and test; and a serial number, or other identifier, for the hoist that was inspected and tested. The most recent certification record shall be maintained on file.

Certification

1926.552(c)(15)—Following assembly and erection of hoists, and before being put in service, an inspection and test of all functions and safety devices shall be made under the supervision of a competent person. A similar inspection and test is required following major alteration of an existing installation. All hoists shall be inspected and tested at not more than 3-month intervals. The employer shall prepare a certification record which includes the date the inspection and test of all functions and safety devices was performed; the signature of the person who performed the inspection and test; and a serial number, or other identifier, for the hoist that was inspected and tested. The most recent certification record shall be maintained on file.
Competent Person

1926.552(c)(15)—Following assembly and erection of hoists, and before being put in service, an inspection and test of all functions and safety devices shall be made under the supervision of a competent person. A similar inspection and test is required following major alteration of an existing installation. All hoists shall be inspected and tested at not more than 3-month intervals. The employer shall prepare a certification record which includes the date the inspection and test of all functions and safety devices was performed; the signature of the person who performed the inspection and test; and a serial number, or other identifier, for the hoist that was inspected and tested. The most recent certification record shall be maintained on file.

Qualified Person

1926.552(a)(1)—The employer shall comply with the manufacturer’s specifications and limitations applicable to the operation of all hoists and elevators. Where manufacturer’s specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a professional engineer competent in the field.

Signs, Markings and Tags

1926.552(a)(2)—Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be posted on cars and platforms.

1926.552(b)(1)(ii)—Operating rules shall be established and posted at the operator’s station of the hoist. Such rules shall include signal system and allowable line speed for various loads. Rules and notices shall be posted on the car frame or crosshead in a conspicuous location, including the statement “No Riders Allowed.”

1926.554—OVERHEAD HOISTS

Scope/Application: This section sets forth regulations pertaining to overhead hoists.

STANDARD HIGHLIGHTS

- Inspections and Tests—per manufacturer
- Recordkeeping—per manufacturer
- Signs, Markings and Tags—markings

Inspections and Tests

1926.554(a)(6)—All overhead hoists in use shall meet the applicable requirements for construction, design, installation, testing, inspection, maintenance, and operation, as prescribed by the manufacturer.

Recordkeeping

1926.554(a)(6)—All overhead hoists in use shall meet the applicable requirements for construction, design, installation, testing, inspection, maintenance, and operation, as prescribed by the manufacturer.

Signs, Markings and Tags

1926.554(a)(1)—The safe working load of the overhead hoist, as determined by the manufacturer, shall be indicated on the hoist, and this safe working load shall not be exceeded.
1926.555—CONVEYORS

Scope/Application: This section sets forth regulations pertaining to conveyors.

STANDARD HIGHLIGHTS

• Inspections and Tests—ANSI
• Signs, Markings and Tags—markings

Inspections and Tests

1926.555(a)(8)—All conveyors in use shall meet the applicable requirements for design, construction, inspection, testing, maintenance, and operation, as prescribed in the ANSI B20.1-1957, Safety Code for Conveyors, Cableways, and Related Equipment.

Signs, Markings and Tags

1926.555(a)(6)—All crossovers, aisles, and passageways shall be conspicuously marked by suitable signs, as required by Subpart G [Signs, Signal, and Barricades] of this part.
29 CFR Subpart O—Motor Vehicles, Mechanized Equipment, and Marine Operations

1926.600—GENERAL REQUIREMENTS

Scope/Application: This section sets forth regulations for motor vehicles, mechanized equipment and marine operations.

STANDARD HIGHLIGHTS

• Inspections and Tests—tests prior to work
• Qualified Person—designated person

Inspections and Tests

1926.600(a)(6)(vii)—Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane.

Qualified Person

1926.600(a)(6)(iv)—A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.

1926.601—MOTOR VEHICLES

Scope/Application: This section sets forth regulations for motor vehicles. Motor vehicles as covered by this part are those vehicles that operate within an off-highway jobsite, not open to public traffic.

Exception: The requirements of this section do not apply to equipment for which rules are prescribed in Sec. 1926.602 [Material Handling Equipment].

STANDARD HIGHLIGHTS

• Inspections and Tests—vehicles checked beginning of each shift

Inspections and Tests

1926.601(b)(14)—All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

1926.602—MATERIAL HANDLING EQUIPMENT

Scope/Application: This section sets forth regulations for material handling equipment. These rules apply to the following types of earthmoving equipment: scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment. The promulgation of specific rules for compactors and rubber-tired “skid-steer” equipment is reserved pending consideration of standards currently being developed.

STANDARD HIGHLIGHTS

• Inspections and Tests—per ANSI requirements
• Recordkeeping—written manufacturer approval
• Training and Communications—initial and refresher training
• Signs, Markings and Tags—rated capacity posted
• Other—29 CFR 1910.178(l)—Powered Industrial Trucks
Inspections and Tests

1926.602(c)(1)(vi)—All industrial trucks in use shall meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in *American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks.*

Recordkeeping

1926.602(c)(1)(ii)—No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the *manufacturer’s written approval.* If such modifications or changes are made, the capacity, operation, and *maintenance instruction plates, tags, or decals* shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

Training and Communications

1926.602(d)—Powered industrial truck operator training. *Note:* The requirements applicable to construction work under this paragraph are identical to those set forth at Sec. 1910.178(l) [Powered Industrial Trucks] of this chapter.

1910.178(l)(3)—*Training program content.* Powered industrial truck operators shall receive initial training in topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer’s workplace. [Reference paragraph (l)(3)i) for training topics.]

Signs, Markings and Tags

1926.602(c)(1)(i)—Lift trucks, stackers, etc., shall have the *rated capacity* clearly *posted* on the vehicle so as to be clearly visible to the operator. When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate *rated capacities* also shall be clearly shown on the vehicle. These *ratings* shall not be exceeded.

1926.602(c)(1)(ii)—No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the *manufacturer’s written approval.* If such modifications or changes are made, the capacity, operation, and *maintenance instruction plates, tags, or decals* shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

Other

29 CFR 1910.178(l)—Powered Industrial Trucks

1910.178(l)(1)(i)—The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the *successful completion of the training and evaluation specified in this paragraph (l) [Operator Training].*

1910.178(l)(1)(ii)—Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer shall ensure that each operator has successfully completed the training required by this paragraph (l) [Operator Training], except as permitted by paragraph (l)(5) [Avoidance of Duplicative Training].

1910.178(l)(3)—*Training program content.* Powered industrial truck operators shall receive initial training in topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer’s workplace. [Reference paragraph (l)(3)i) for training topics.]

1910.178(l)(4)(i)—Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by paragraph (l)(4)(ii) [Refresher Training and Evaluation] to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.
1926.603—PILE DRIVING EQUIPMENT

Scope/Application: This section sets forth regulations for pile driving equipment

STANDARD HIGHLIGHTS

• Qualified Person—designated signalmen

Qualified Person

1926.603(c)(1)—Engineers and winchmen shall accept signals only from the designated signalmen.

1926.604—SITE CLEARING

Scope/Application: This section sets forth regulations for site clearing

STANDARD HIGHLIGHTS

• Training and Communications—instruction on first aid treatment

Training and Communications

1926.604(a)(1)—Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.
29 CFR Subpart P—Excavations

1926.651—SPECIFIC EXCAVATION REQUIREMENTS

Scope/Application: This subpart applies to all open excavations made in the earth’s surface. Excavations are defined to include trenches.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections before entry, after rain, and daily, atmospheric
- Competent Person—daily inspections, design, monitor

Inspections and Tests

1926.651(g)(1)(i)—Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.

1926.651(g)(1)(iv)—When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

1926.651(h)(3)—If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (h)(1) and (h)(2) [Protection From Hazards Associated With Water Accumulation] of this section.

1926.651(k)(1)—Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

Competent Person

1926.651(c)(1)(i)—Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

1926.651(h)(2)—If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

1926.651(h)(3)—If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (h)(1) and (h)(2) [Protection From Hazards Associated With Water Accumulation] of this section.
1926.651(k)(1)—Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

1926.651(k)(2)—Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.
1926.652—REQUIREMENTS FOR PROTECTIVE SYSTEMS

Scope/Application: This subpart applies to all open excavations made in the earth’s surface. Excavations are defined to include trenches.

STANDARD HIGHLIGHTS

- Recordkeeping—designs at job site, written manufacturer Information
- Training and Communications—explanatory information
- Qualified Person—registered professional engineer

Recordkeeping

1926.652(b)(3)(iii)—Design of sloping and benching systems. At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

1926.652(b)(4)(ii)—Design of sloping and benching systems. Designs shall be in written form and shall include specific information. [Reference paragraph (b)(4)(ii) for specific provisions.]

1926.652(b)(4)(iii)—Design of sloping and benching systems. At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.

1926.652(c)(2)(iii)—Design of support systems, shield systems, and other protective systems. Manufacturer’s specifications, recommendations, and limitations, and manufacturer’s approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the Secretary upon request.

1926.652(c)(3)(iii)—Design of support systems, shield systems, and other protective systems. At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

1926.652(c)(4)(iii)—Design of support systems, shield systems, and other protective systems. At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Secretary upon request.

Training and Communications

1926.652(b)(3)(ii)(C)—Design of sloping and benching systems. Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

1926.652(c)(3)(ii)(C)—Design of support systems, shield systems, and other protective systems. Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

Qualified Person

1926.652(b)(3)(iii)—Design of sloping and benching systems. At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.
1926.652(c)(3)(iii)—*Design* of support systems, shield systems, and other protective systems. *At least one copy of the tabulated data, which identifies the [registered professional engineer](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=IFR&p_id=10483) who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

1926.652(b)(4)(i)—Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under paragraph (b) [Design of Sloping and Benching Systems] of this section shall be *approved* by a [registered professional engineer](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=IFR&p_id=10483).
29 CFR Subpart Q—Concrete and Masonry Construction

1926.701—GENERAL REQUIREMENTS

Scope/Application: This subpart sets forth requirements to protect all construction employees from the hazards associated with concrete and masonry construction operations performed in workplaces covered under 29 CFR Part 1926. In addition to the requirements in subpart Q [Concrete and Masonry Construction], other relevant provisions in parts 1910 [General Industry] and 1926 [Construction Industry] apply to concrete and masonry construction operations.

STANDARD HIGHLIGHTS

- Recordkeeping—information
- Qualified Person—structural design
- Signs, Markings and Tags—barriers, signs

Recordkeeping

1926.701(a)—Construction loads. No construction loads shall be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

Qualified Person

1926.701(a)—Construction loads. No construction loads shall be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

Signs, Markings and Tags

1926.702(c)(2)—Signs and barriers shall be erected to limit employee access to the post-tensioning area during tensioning operations.

1926.702—REQUIREMENTS FOR EQUIPMENT AND TOOLS

Scope/Application: This subpart sets forth requirements to protect all construction employees from the hazards associated with concrete and masonry construction operations performed in workplaces covered under 29 CFR Part 1926. In addition to the requirements in subpart Q [Concrete and Masonry Construction], other relevant provisions in parts 1910 [General Industry] and 1926 [Construction Industry] apply to concrete and masonry construction operations. This section contains the general requirements for equipment and tools.

STANDARD HIGHLIGHTS

- Signs, Markings and Tags—locks and tags

Signs, Markings and Tags

1926.702(a)(2)—No employee shall be permitted to enter storage facilities unless the ejection system has been shut down, locked out, and tagged to indicate that the ejection system is not to be operated.

1926.702(j)(1)—No employee shall be permitted to perform maintenance or repair activity on equipment (such as compressors, mixers, screens or pumps used for concrete and masonry construction activities) where the inadvertent operation of the equipment could occur and cause injury, unless all potentially hazardous energy sources have been locked out and tagged.

1926.703—REQUIREMENTS FOR CAST-IN-PLACE CONCRETE

Scope/Application: This subpart sets forth requirements to protect all construction employees from the hazards associated with concrete and masonry construction operations performed in workplaces covered under 29 CFR Part 1926. In addition
to the requirements in subpart Q [Concrete and Masonry Construction], other relevant provisions in parts 1910 [General Industry] and 1926 [Construction Industry] apply to concrete and masonry construction operations. This section contains the general requirements for formwork.

STANDARD HIGHLIGHTS
- Inspections and Tests—inspections prior to erection and immediate, ASTM
- Recordkeeping—drawings and plans at jobsite
- Qualified Person—qualified engineer, inspections

Inspections and Tests

1926.703(b)(1)—All shoring equipment (including equipment used in reshoring operations) shall be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

1926.703(b)(3)—Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.

1926.703(b)(8)(i)—The design of the shoring shall be prepared by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design.

1926.703(e)(1)(ii)—The concrete has been properly tested with an appropriate ASTM standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

Recordkeeping

1926.703(a)(2)—Drawings or plans, including all revisions, for the jack layout, formwork (including shoring equipment), working decks, and scaffolds, shall be available at the jobsite.

1926.703(b)(1)—All shoring equipment (including equipment used in reshoring operations) shall be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

1926.703(b)(8)(i)—The design of the shoring shall be prepared by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design.

Qualified Person

1926.703(b)(8)(i)—The design of the shoring shall be prepared by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design.

1926.705—REQUIREMENTS FOR LIFT-SLAB OPERATIONS

Scope/Application: This subpart sets forth requirements to protect all construction employees from the hazards associated with concrete and masonry construction operations performed in workplaces covered under 29 CFR Part 1926. In addition to the requirements in subpart Q [Concrete and Masonry Construction], other relevant provisions in parts 1910 [General Industry] and 1926 [Construction Industry] apply to concrete and masonry construction operations. This section contains the general requirements for lift-slab operations.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—measures implemented by employer
- Recordkeeping—designs
- Competent Person—experienced
• Qualified Person—registered professional engineer
• Signs, Markings and Tags—markings

Programs, Policies and Procedures

1926.705(p)—Equipment shall be designed and installed so that the lifting rods cannot slip out of position or the employer shall institute other measures, such as the use of locking or blocking devices, which will provide positive connection between the lifting rods and attachments and will prevent components from disengaging during lifting operations.

Recordkeeping

1926.705(a)—Lift-slab operations shall be designed and planned by a registered professional engineer who has experience in lift-slab construction. Such plans and designs shall be implemented by the employer and shall include detailed instructions and sketches indicating the prescribed method of erection. These plans and designs shall also include provisions for ensuring lateral stability of the building/structure during construction.

Competent Person

1926.705(i)—If leveling is maintained by manual controls, such controls shall be located in a central location and attended by a competent person while lifting is in progress. In addition to meeting the definition in 1926.32(f) [Definitions], the competent person must be experienced in the lifting operation and with the lifting equipment being used.

Qualified Person

1926.705(a)—Lift-slab operations shall be designed and planned by a registered professional engineer who has experience in lift-slab construction. Such plans and designs shall be implemented by the employer and shall include detailed instructions and sketches indicating the prescribed method of erection. These plans and designs shall also include provisions for ensuring lateral stability of the building/structure during construction.

Signs, Markings and Tags

1926.705(b)—Jacks/lifting units shall be marked to indicate their rated capacity as established by the manufacturer.

1926.706—REQUIREMENTS FOR MASONRY CONSTRUCTION

Scope/Application: This subpart sets forth requirements to protect all construction employees from the hazards associated with concrete and masonry construction operations performed in workplaces covered under 29 CFR Part 1926. In addition to the requirements in subpart Q [Concrete and Masonry Construction], other relevant provisions in parts 1910 [General Industry] and 1926 [Construction Industry] apply to concrete and masonry construction operations. This section contains the general requirements for masonry construction.

STANDARD HIGHLIGHTS
• Signs, Markings and Tags—limited access zone established

Signs, Markings and Tags

1926.706(a)—A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following. [Reference 1926.706(a) for specific requirements.]

1926.706(a)(3)—The limited access zone shall be established on the side of the wall which will be unscaffolded.
29 CFR Subpart R—Steel Erection

1926.752—SITE LAYOUT, SITE-SPECIFIC ERECTION PLAN AND CONSTRUCTION SEQUENCE

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—site-specific erection plan, preplanning
- Inspections and Tests—ASTM
- Recordkeeping—written notification of approval
- Qualified Person—site-specific erection plan

Programs, Policies and Procedures

1926.752(d)—Pre-planning of overhead hoisting operations. All hoisting operations in steel erection shall be preplanned to ensure that the requirements of Sec. 1926.753(d) [Working Under Loads] are met.

1926.752(e)—Site-specific erection plan. Where employers elect, due to conditions specific to the site, to develop alternate means and methods that provide employee protection in accordance with Sec. 1926.753(c)(5) [Hoisting and Rigging], Sec. 1926.757(a)(4) [Structural Steel Assembly] or Sec. 1926.757(e)(4) [Open Web Steel Joists], a site-specific erection plan shall be developed by a qualified person and be available at the work site. Guidelines for establishing a site-specific erection plan are contained in Appendix A to this subpart.

Inspections and Tests

1926.752(b)—Commencement of steel erection. A steel erection contractor shall not erect steel unless it has received written notification that the concrete in the footings, piers and walls or the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

Recordkeeping

1926.752(a)—Approval to begin steel erection. Before authorizing the commencement of steel erection, the controlling contractor shall ensure that the steel erector is provided with written notifications. [Reference paragraph (a) for notifications.]

1926.752(b)—Commencement of steel erection. A steel erection contractor shall not erect steel unless it has received written notification that the concrete in the footings, piers and walls or the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

Qualified Person

1926.752(e)—Site-specific erection plan. Where employers elect, due to conditions specific to the site, to develop alternate means and methods that provide employee protection in accordance with Sec. 1926.753(c)(5) [Hoisting and Rigging], Sec. 1926.757(a)(4) [Structural Steel Assembly] or Sec. 1926.757(e)(4) [Open Web Steel Joists], a site-specific erection plan shall be developed by a qualified person and be available at the work site. Guidelines for establishing a site-specific erection plan are contained in Appendix A to this subpart.
1926.753—HOISTING AND RIGGING

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to hoists and rigging.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—site-specific erection plan
- Inspections and Tests—pre-shift and visual inspections
- Recordkeeping—certified by manufacturers and qualified riggers
- Certification—certified by manufacturers and qualified riggers
- Training and Communications—procedures
- Competent Person—inspections
- Qualified Person—qualified rigger, inspections

Programs, Policies and Procedures

1926.753(c)(5)(ii)—When equivalent protection is provided in a site-specific erection plan.

1926.753(e)(1)(iv)—All employees engaged in the multiple lift have been trained in these procedures in accordance with Sec. 1926.761(c)(1) [Training].

Inspections and Tests

1926.753(c)(1)—Pre-shift visual inspection of cranes.

1926.753(c)(1)(i)—Cranes being used in steel erection activities shall be visually inspected prior to each shift by a competent person; the inspection shall include observation for deficiencies during operation. At a minimum, this inspection shall include additional information. [Reference paragraph (c)(1)(i) for specific provisions.]

Recordkeeping

1926.753(e)(2)—Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly and for each individual attachment point. This capacity, certified by the manufacturer or a qualified rigger, shall be based on the manufacturer’s specifications with a 5 to 1 safety factor for all components.

Certification

1926.753(e)(2)—Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly and for each individual attachment point. This capacity, certified by the manufacturer or a qualified rigger, shall be based on the manufacturer’s specifications with a 5 to 1 safety factor for all components.

Training and Communications

1926.753(e)(1)(iv)—All employees engaged in the multiple lift have been trained in these procedures in accordance with Sec. 1926.761(c)(1) [Training].

Competent Person

1926.753(c)(1)(i)—Cranes being used in steel erection activities shall be visually inspected prior to each shift by a competent person; the inspection shall include observation for deficiencies during operation. At a minimum, this inspection shall include additional information. [Reference paragraph (c)(1)(i) for specific provisions.]
1926.753(c)(1)(ii)—If any deficiency is identified, an immediate determination shall be made by the competent person as to whether the deficiency constitutes a hazard.

Qualified Person

1926.761(c)(2)—A qualified rigger (a rigger who is also a qualified person) shall inspect the rigging prior to each shift in accordance with Sec. 1926.251 [Rigging Equipment for Material Handling].

1926.753(c)(5)—Safety latches on hooks shall not be deactivated or made inoperable except:

1926.753(c)(5)(i)—When a qualified rigger has determined that the hoisting and placing of purlins and single joists can be performed more safely by doing so; or

1926.753(c)(5)(ii)—When equivalent protection is provided in a site-specific erection plan.

1926.761(d)(2)(iii)—All loads shall be rigged by a qualified rigger.

1926.753(e)(2)—Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly and for each individual attachment point. This capacity, certified by the manufacturer or a qualified rigger, shall be based on the manufacturer’s specifications with a 5 to 1 safety factor for all components.

1926.754—STRUCTURAL STEEL ASSEMBLY

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to structural steel assembly.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS
• Competent Person—approvals

Competent Person

1926.754(d)(1)—When deemed necessary by a competent person, plumbing-up equipment shall be installed in conjunction with the steel erection process to ensure the stability of the structure.

1926.754(d)(3)—Plumbing-up equipment shall be removed only with the approval of a competent person.

1926.755—COLUMN ANCHORAGE

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to column anchorage.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS
• Inspections and Tests—evaluations by competent person
• Recordkeeping—controlling contractor provides written notification
• Competent Person—evaluations
Inspections and Tests

1926.755(a)(4)—All columns shall be evaluated by a competent person to determine whether guyng or bracing is needed; if guyng or bracing is needed, it shall be installed.

Recordkeeping

1926.755(b)(2)—Prior to the erection of a column, the controlling contractor shall provide written notification to the steel erector if there has been any repair, replacement or modification of the anchor rods (anchor bolts) of that column.

Competent Person

1926.755(a)(4)—All columns shall be evaluated by a competent person to determine whether guyng or bracing is needed; if guyng or bracing is needed, it shall be installed.

1926.756—BEAMS AND COLUMNS

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to beams and columns.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS

- Recordkeeping—drawings, engineer of record
- Competent Person—determinations
- Qualified Person—structural engineer of record

Recordkeeping

1926.756(a)(1)—During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with at least two bolts per connection, of the same size and strength as shown in the erection drawings, drawn up wrench-tight or the equivalent as specified by the project structural engineer of record, except as specified in paragraph (b) [Diagonal Bracing] of this section.

1926.756(b)—Diagonal bracing. Solid web structural members used as diagonal bracing shall be secured by at least one bolt per connection drawn up wrench-tight or the equivalent as specified by the project structural engineer of record.

Competent Person

1926.756(a)(2)—A competent person shall determine if more than two bolts are necessary to ensure the stability of cantilevered members; if additional bolts are needed, they shall be installed.

Qualified Person

1926.756(a)(1)—During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with at least two bolts per connection, of the same size and strength as shown in the erection drawings, drawn up wrench-tight or the equivalent as specified by the project structural engineer of record, except as specified in paragraph (b) [Diagonal Bracing] of this section.

1926.756(b)—Diagonal bracing. Solid web structural members used as diagonal bracing shall be secured by at least one bolt per connection drawn up wrench-tight or the equivalent as specified by the project structural engineer of record.
1926.757—OPEN WEB STEEL JOISTS

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to open web steel joists.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS
• Recordkeeping—written approval
• Qualified Person—written approval, engineer of record, documented in plan

Recordkeeping

1926.757(a)(2)(i)(B)—Be designed by a qualified person. [Reference paragraph (a)(2) for specific provisions.]

1926.757(a)(7)—No modification that affects the strength of a steel joist or steel joist girder shall be made without the approval of the project structural engineer of record.

1926.757(a)(9)—Steel joists and steel joist girders shall not be used as anchorage points for a fall arrest system unless written approval to do so is obtained from a qualified person.

1926.757(e)(4)(i)—The employer has first determined from a qualified person and documented in a site-specific erection plan that the structure or portion of the structure is capable of supporting the load.

Qualified Person

1926.757(a)(2)(i)(B)—Be designed by a qualified person. [Reference paragraph (a)(2) for specific provisions.]

1926.757(a)(4)—Where steel joists at or near columns span more than 60 feet (18.3 m), the joists shall be set in tandem with all bridging installed unless an alternative method of erection, which provides equivalent stability to the steel joist, is designed by a qualified person and is included in the site-specific erection plan.

1926.757(a)(7)—No modification that affects the strength of a steel joist or steel joist girder shall be made without the approval of the project structural engineer of record.

1926.757(a)(9)—Steel joists and steel joist girders shall not be used as anchorage points for a fall arrest system unless written approval to do so is obtained from a qualified person.

1926.757(e)(4)(i)—The employer has first determined from a qualified person and documented in a site-specific erection plan that the structure or portion of the structure is capable of supporting the load.

1926.758—SYSTEMS-ENGINEERED METAL BUILDINGS

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to systems-engineered metal buildings.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.
STANDARD HIGHLIGHTS

- Recordkeeping—written approval
- Qualified Person—written approval

Recordkeeping

1926.758(g)—Purlins and girts shall not be used as an anchorage point for a fall arrest system unless written approval is obtained from a qualified person.

Qualified Person

1926.758(g)—Purlins and girts shall not be used as an anchorage point for a fall arrest system unless written approval is obtained from a qualified person.

1926.760—FALL PROTECTION

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to fall protection.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections
- Training and Communications—connector training, controlled access zone training
- Qualified Person—authorized persons
- Signs, Markings and Tags—controlled decking zone established, marked

Inspections and Tests

1926.760(e)(2)—Has inspected and accepted control and responsibility of the fall protection prior to authorizing persons other than steel erectors to work in the area.

Training and Communications

1926.760(b)(2)—Have completed connector training in accordance with Sec. 1926.761 [Training].

1926.760(c)(4)—Each employee working in a CDZ shall have completed CDZ training in accordance with Sec. 1926.761 [Training].

Qualified Person

1926.760(e)(2)—Has inspected and accepted control and responsibility of the fall protection prior to authorizing persons other than steel erectors to work in the area.

Signs, Markings and Tags

1926.760(c)—Controlled Decking Zone (CDZ). A controlled decking zone may be established in that area of the structure over 15 and up to 30 feet above a lower level where metal decking is initially being installed and forms the leading edge of a work area. In each CDZ, the following shall apply. [Reference paragraph (c) for specific provisions.]

1926.760(c)(3)—The boundaries of a CDZ shall be designated and clearly marked. The CDZ shall not be more than 90 feet (27.4 m) wide and 90 (27.4 m) feet deep from any leading edge. The CDZ shall be marked by the use of control lines.
or the equivalent. Examples of acceptable procedures for demarcating CDZ’s can be found in Appendix D [Illustration of the Use of Control Lines to Demarcate CDZ] to this subpart.

1926.761—TRAINING

Scope/Application: This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This section applies to training. The following provisions supplement the requirements of § 1926.21—Safety Training and Education regarding the hazards addressed in this subpart.

Exception: This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—training program, procedures
- Training and Communications—training
- Qualified Person—provide training

Programs, Policies and Procedures

1926.761(b)—Fall hazard training. The employer shall train each employee exposed to a fall hazard in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program. [Reference paragraph (b) for specific requirements.]

1926.761(c)—Special training programs. In addition to the training required in paragraphs (a) [Training Personnel] and (b) [Fall Hazard Training] of this section, the employer shall provide special training to employees engaged in the specific activities. [Reference paragraph (c)(1) for specific requirements.]

1926.761(c)(2)—Connector procedures. The employer shall ensure that each connector has been provided training in specific areas. [Reference paragraph (c)(2) for specific requirements.]

1926.761(c)(3)—Controlled Decking Zone Procedures. Where CDZs are being used, the employer shall assure that each employee has been provided training in the specific areas. [Reference paragraph (c)(3) for specific requirements.]

Training and Communications

1926.761(a)—Training personnel. Training required by this section shall be provided by a qualified person(s).

1926.761(b)—Fall hazard training. The employer shall train each employee exposed to a fall hazard in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program. [Reference paragraph (b) for specific requirements.]

1926.761(c)—Special training programs. In addition to the training required in paragraphs (a) [Training Personnel] and (b) [Fall Hazard Training] of this section, the employer shall provide special training to employees engaged in the specific activities. [Reference paragraph (c)(1) for specific requirements.]

1926.761(c)(2)—Connector procedures. The employer shall ensure that each connector has been provided training in specific areas. [Reference paragraph (c)(2) for specific requirements.]

1926.761(c)(3)—Controlled Decking Zone Procedures. Where CDZs are being used, the employer shall assure that each employee has been provided training in the specific areas. [Reference paragraph (c)(3) for specific requirements.]

Qualified Person

1926.761(a)—Training personnel. Training required by this section shall be provided by a qualified person(s).
1926.800—UNDERGROUND CONSTRUCTION

Scope/Application: This section applies to the construction of underground tunnels, shafts, chambers, and passageways. This section also applies to cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.

Exception: This section does not apply to excavation and trenching operations covered by subpart P [Excavations] of this part, such as foundation operations for above-ground structures that are not physically connected to underground construction operations, and surface excavation; nor underground electrical transmission and distribution lines, as addressed in subpart V [Power Transmission and Distribution] of this part or access and egress.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—checkin/checkout
- Inspections and Tests—prior to use, each shift, frequent inspections, competent person
- Recordkeeping—retention, qualification tests
- Certification—record
- Training and Communications—initial training
- Exposure Monitoring—air monitoring conducted initially, frequently, and continuously
- Competent Person—air monitoring, inspections, other
- Qualified Person—qualifications, review
- Signs, Markings and Tags—posted warning signs, area classifications

Programs, Policies and Procedures

1926.800(c)—Check-in/check-out. The employer shall maintain a check-in/check-out procedure that will ensure that above-ground personnel can determine an accurate count of the number of persons underground in the event of an emergency. However, this procedure is not required when the construction of underground facilities designed for human occupancy has been sufficiently completed so that the permanent environmental controls are effective, and when the remaining construction activity will not cause any environmental hazard or structural failure within the facilities.

1926.800(g)(5)(iii)—Rescue team members shall be qualified in rescue procedures, the use and limitations of breathing apparatus, and the use of firefighting equipment. Qualifications shall be reviewed not less than annually.

Inspections and Tests

1926.800(f)(4)—Communication systems shall be tested upon initial entry of each shift to the underground, and as often as necessary at later times, to ensure that they are in working order.

1926.800(k)(7)—When ventilation has been reduced to the extent that hazardous levels of methane or flammable gas may have accumulated, a competent person shall test all affected areas after ventilation has been restored and shall determine whether the atmosphere is within flammable limits before any power, other than for acceptable equipment, is restored or work is resumed.

1926.800(k)(8)—Whenever the ventilation system has been shut down with all employees out of the underground area, only competent persons authorized to test for air contaminants shall be allowed underground until the ventilation has been restored and all affected areas have been tested for air contaminants and declared safe.

1926.800(o)(3)(i)(A)—A competent person shall inspect the roof, face, and walls of the work area at the start of each shift and as often as necessary to determine ground stability.
1926.800(o)(3)(ii)—Ground conditions along haulageways and travelways shall be inspected as frequently as necessary to ensure safe passage.

1926.800(q)(1)—A competent person shall inspect all drilling and associated equipment prior to each use. Equipment defects affecting safety shall be corrected before the equipment is used.

1926.800(q)(2)—The drilling area shall be inspected for hazards before the drilling operation is started.

1926.800(t)(3)(xix)—A competent person shall visually check all hoisting machinery, equipment, anchorages, and hoisting rope at the beginning of each shift and during hoist use, as necessary.

1926.800(t)(3)(xx)—Each safety device shall be checked by a competent person at least weekly during hoist use to ensure suitable operation and safe condition.

1926.800(t)(3)(xxi)—In order to ensure suitable operation and safe condition of all functions and safety devices, each hoist assembly shall be inspected and load-tested to 100 percent of its rated capacity at the time of installation; after any repairs or alterations affecting its structural integrity; after the operation of any safety device; and annually when in use. The employer shall prepare a certification record which includes the date each inspection and load-test was performed; the signature of the person who performed the inspection and test; and a serial number or other identifier for the hoist that was inspected and tested. The most recent certification record shall be maintained on file until completion of the project.

Recordkeeping

1926.800(j)(3)—Recordkeeping. A record of all air quality tests shall be maintained above ground at the worksite and be made available to the Secretary of Labor upon request. The record shall include the location, date, time, substance and amount monitored. Records of exposures to toxic substances shall be retained in accordance with 1926.33 [Access to Employee Exposure and Medical Records] of this chapter. All other air quality test records shall be retained until completion of the project.

1926.800(t)(3)(xxi)—In order to ensure suitable operation and safe condition of all functions and safety devices, each hoist assembly shall be inspected and load-tested to 100 percent of its rated capacity at the time of installation; after any repairs or alterations affecting its structural integrity; after the operation of any safety device; and annually when in use. The employer shall prepare a certification record which includes the date each inspection and load-test was performed; the signature of the person who performed the inspection and test; and a serial number or other identifier for the hoist that was inspected and tested. The most recent certification record shall be maintained on file until completion of the project.

Certification

1926.800(t)(3)(xxi)—In order to ensure suitable operation and safe condition of all functions and safety devices, each hoist assembly shall be inspected and load-tested to 100 percent of its rated capacity at the time of installation; after any repairs or alterations affecting its structural integrity; after the operation of any safety device; and annually when in use. The employer shall prepare a certification record which includes the date each inspection and load-test was performed; the signature of the person who performed the inspection and test; and a serial number or other identifier for the hoist that was inspected and tested. The most recent certification record shall be maintained on file until completion of the project.

Training and Communications

1926.800(e)(2)—The employer shall establish and maintain direct communications for coordination of activities with other employers whose operations at the jobsite affect or may affect the safety of employees underground.

1926.800(d)—Safety instruction. All employees shall be instructed in the recognition and avoidance of hazards associated with underground construction activities. [Reference paragraph (d) for specific requirements.]

1926.800(f)(4)—Communication systems shall be tested upon initial entry of each shift to the underground, and as often as necessary at later times, to ensure that they are in working order.
1926.800(g)(5)(iv)—On jobsites where flammable or noxious gases are encountered or anticipated in hazardous quantities, rescue team members shall practice donning and using self-contained breathing apparatus monthly.

1926.800(j)(1)(v)(C)—Employees shall be informed when a concentration of 10 ppm hydrogen sulfide is exceeded.

1926.800(t)(1)(iv)(A)—Before maintenance, repairs, or other work is commenced in the shaft served by a cage, skip, or bucket, the operator and other employees in the area shall be informed and given suitable instructions.

Exposure Monitoring

1926.800(j)(1)(i)(A)—The employer shall assign a competent person who shall perform all air monitoring required by this section.

1926.800(j)(1)(ii)(A)—The atmosphere in all underground work areas shall be tested as often as necessary to assure that the atmosphere at normal atmospheric pressure contains at least 19.5 percent oxygen and no more than 22 percent oxygen.

1926.800(j)(1)(ii)(B)—Tests for oxygen content shall be made before tests for air contaminants.

1926.800(j)(1)(iii)(A)—The atmosphere in all underground work areas shall be tested quantitatively for carbon monoxide, nitrogen dioxide, hydrogen sulfide, and other toxic gases, dusts, vapors, mists, and fumes as often as necessary to ensure that the permissible exposure limits prescribed in 1926.55 [Gases, Vapors, Fumes, Dusts, and Mists] are not exceeded.

1926.800(j)(1)(iii)(B)—The atmosphere in all underground work areas shall be tested quantitatively for methane and other flammable gases as often as necessary.

1926.800(j)(1)(iii)(C)—If diesel-engine or gasoline-engine driven ventilating fans or compressors are used, an initial test shall be made of the inlet air of the fan or compressor, with the engines operating, to ensure that the air supply is not contaminated by engine exhaust.

1926.800(j)(1)(iii)(D)—Testing shall be performed as often as necessary to ensure that the ventilation requirements of paragraph (k) [Ventilation] of this section are met.

1926.800(j)(1)(v)(A)—Whenever air monitoring indicates the presence of 5 ppm or more of hydrogen sulfide, a test shall be conducted in the affected underground work area(s), at least at the beginning and midpoint of each shift, until the concentration of hydrogen sulfide has been less than 5 ppm for 3 consecutive days.

1926.800(j)(1)(vi)—When the competent person determines, on the basis of air monitoring results or other information, that air contaminants may be present in sufficient quantity to be dangerous to life. [Reference paragraph (j)(1)(vi) for specific requirements.]

1926.800(j)(2)(iv)—Local gas tests shall be made prior to and continuously during any welding, cutting or other hot work.

1926.800(j)(2)(v)—In underground operations driven by drill-and-blast methods, the air in the affected area shall be tested for flammable gas prior to re-entry after blasting, and continuously when employees are working underground.

1926.800(k)(7)—When ventilation has been reduced to the extent that hazardous levels of methane or flammable gas may have accumulated, a competent person shall test all affected areas after ventilation has been restored and shall determine whether the atmosphere is within flammable limits before any power, other than for acceptable equipment, is restored or work is resumed.

1926.800(k)(8)—Whenever the ventilation system has been shut down with all employees out of the underground area, only competent persons authorized to test for air contaminants shall be allowed underground until the ventilation has been restored and all affected areas have been tested for air contaminants and declared safe.
Competent Person

1926.800(j)(1)(i) 1926.800(j)(1)(i)(A)—The employer shall assign a competent person who shall perform all air monitoring required by this section.

1926.800(j)(1)(i)(B)—Where this paragraph requires monitoring of airborne contaminants “as often as necessary,” the competent person shall make a reasonable determination as to which substances to monitor and how frequently monitor, considering specific factors. [Reference paragraph (j)(1)(i)(8) for specific requirements.]

1926.800(j)(1)(vi)—When the competent person determines, on the basis of air monitoring results or other information, that air contaminants may be present in sufficient quantity to be dangerous to life. [Reference paragraph (j)(1)(vi) for specific requirements.]

1926.800(k)(7)—When ventilation has been reduced to the extent that hazardous levels of methane or flammable gas may have accumulated, a competent person shall test all affected areas after ventilation has been restored and shall determine whether the atmosphere is within flammable limits before any power, other than for acceptable equipment, is restored or work is resumed.

1926.800(k)(8)—Whenever the ventilation system has been shut down with all employees out of the underground area, only competent persons authorized to test for air contaminants shall be allowed underground until the ventilation has been restored and all affected areas have been tested for air contaminants and declared safe.

1926.800(o)(3)(i)(A)—A competent person shall inspect the roof, face, and walls of the work area at the start of each shift and as often as necessary to determine ground stability.

1926.800(o)(3)(iv)(B)—A competent person shall determine whether rock bolts meet the necessary torque, and shall determine the testing frequency in light of the bolt system, ground conditions and the distance from vibration sources.

1926.800(o)(4)(iii)—After blasting operations in shafts, a competent person shall determine if the walls, ladders, timbers, blocking, or wedges have loosened. If so, necessary repairs shall be made before employees other than those assigned to make the repairs are allowed in or below the affected areas.

1926.800(q)(1)—A competent person shall inspect all drilling and associated equipment prior to each use. Equipment defects affecting safety shall be corrected before the equipment is used.

1926.800(r)(1)(i)—A competent person shall inspect haulage equipment before each shift.

1926.800(t)(3)(xix)—A competent person shall visually check all hoisting machinery, equipment, anchorages, and hoisting rope at the beginning of each shift and during hoist use, as necessary.

1926.800(t)(3)(xx)—Each safety device shall be checked by a competent person at least weekly during hoist use to ensure suitable operation and safe condition.

Qualified Person

1926.800(g)(3)—Designated person. At least one designated person shall be on duty above ground whenever any employee is working underground. This designated person shall be responsible for securing immediate aid and keeping an accurate count of employees underground in case of emergency. The designated person must not be so busy that the counting function is encumbered.

1926.800(g)(5)(iii)—Rescue team members shall be qualified in rescue procedures, the use and limitations of breathing apparatus, and the use of firefighting equipment. Qualifications shall be reviewed not less than annually.
1926.800(r)(18)(i)—Where switching facilities are available, occupied personnel-cars shall be pulled, not pushed. If personnel-cars must be pushed and visibility of the track ahead is hampered, then a qualified person shall be stationed in the lead car to give signals to the locomotive operator.

Signs, Markings and Tags

1926.800(b)(3)—The employer shall control access to all openings to prevent unauthorized entry underground. Unused chutes, manways, or other openings shall be tightly covered, bulkheaded, or fenced off, and shall be posted with warning signs indicating “Keep Out” or similar language. Completed or unused sections of the underground facility shall be barricaded.

1926.800(h)(1)—Potentially gassy operations. Underground construction operations shall be classified as potentially gassy. [Reference paragraph (h)(1) for specific requirements.]

1926.800(h)(2)—Gassy operations. Underground construction operations shall be classified as gassy. [Reference paragraph (h)(2) for specific requirements.]

1926.800(o)(2)—Subsidence areas. The employer shall ensure ground stability in hazardous subsidence areas by shoring, by filling in, or by erecting barricades and posting warning signs to prevent entry.

1926.800(t)(1)(iv)(B)—A sign warning that work is being done in the shaft shall be installed at the shaft collar, at the operator’s station, and at each underground landing.

1926.801—CAISSONS

Scope/Application: This section applies to the construction of underground tunnels, shafts, chambers, and passageways. This section also applies to cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.

Exception: This section does not apply to excavation and trenching operations covered by subpart P [Excavations] of this part, such as foundation operations for above-ground structures that are not physically connected to underground construction operations, and surface excavation: nor underground electrical transmission and distribution lines, as addressed in subpart V [Power Transmission and Distribution] of this part, or access and egress.

STANDARD HIGHLIGHTS
• Inspections and Tests—tests
• Signs, Markings and Tags—stamped shafts

Inspections and Tests

1926.801(b)—Shafts shall be subjected to a hydrostatic or air-pressure test, at which pressure they shall be tight. The shaft shall be stamped on the outside shell about 12 inches from each flange to show the pressure to which they have been subjected.

Signs, Markings and Tags

1926.801(b)—Shafts shall be subjected to a hydrostatic or air-pressure test, at which pressure they shall be tight. The shaft shall be stamped on the outside shell about 12 inches from each flange to show the pressure to which they have been subjected.

1926.802—COFFERDAMS

Scope/Application: This section applies to the construction of underground tunnels, shafts, chambers, and passageways. This section also applies to cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.
**Exception:** This section does not apply to excavation and trenching operations covered by subpart P [Excavations] of this part, such as foundation operations for above-ground structures that are not physical connected to underground construction operations, and surface excavation: nor underground electrical transmission and distribution lines, as addressed in subpart V [Power Transmission and Distribution] of this part, or access and egress.

**STANDARD HIGHLIGHTS**

- Signs, Markings and Tags—posted warning signs

**Signs, Markings and Tags**

1926.802(b)—Warning signals for evacuation of employees in case of emergency shall be developed and posted.

1926.803—COMPRESSED AIR

**Scope/Application:** This section applies to the construction of underground tunnels, shafts, chambers, and passageways. This section also applies to cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.

**Exception:** This section does not apply to excavation and trenching operations covered by subpart P [Excavations] of this part, such as foundation operations for above-ground structures that are not physical connected to underground construction operations, and surface excavation: nor underground electrical transmission and distribution lines, as addressed in subpart V [Power Transmission and Distribution] of this part, or access and egress.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—procedures
- Recordkeeping—examination records, air monitoring records, identification badges
- Training and Communications—instructions
- Exposure Monitoring—once each shift
- Medical Surveillance—physically qualified
- Competent Person—designated, familiar with subparts
- Qualified Person—licensed physician on-site, physically qualified
- Signs, Markings and Tags—post rated capacity

**Programs, Policies and Procedures**

1926.803(f)(2)—In the event it is necessary for an employee to be in compressed air more than once in a 24-hour period, the appointed physician shall be responsible for the establishment of methods and procedures of decompression applicable to repetitive exposures.

1926.803(f)(3)—If decanting is necessary, the appointed physician shall establish procedures before any employee is permitted to be decompressed by decanting methods. The period of time that the employees spend at atmospheric pressure between the decompression following the shift and recompression shall not exceed 5 minutes.

**Recordkeeping**

1926.803(b)(5)—Such physician shall at all times keep a complete and full record of examinations made by him. The physician shall also keep an accurate record of any decompression illness or other illness or injury incapacitating any employee for work, and of all loss of life that occurs in the operation of a tunnel, caisson, or other compartment in which compressed air is used.

1926.803(b)(6)—Records shall be available for the inspection of the Secretary or his representatives, and a copy thereof shall be forwarded to OSHA within 48 hours following the occurrence of the accident, death, injury, or decompression illness. It shall state as fully as possible the cause of said death or decompression illness, and the place where the injured or sick employee was taken, and such other relative information as may be required by the Secretary.
Identification badges shall be furnished to all employees, indicating that the wearer is a compressed air worker. A permanent record shall be kept of all identification badges issued. The badge shall give the employee’s name, address of the medical lock, the telephone number of the licensed physician for the compressed air project, and contain instructions that in case of emergency of unknown or doubtful cause or illness, the wearer shall be rushed to the medical lock. The badge shall be worn at all times—off the job, as well as on the job.

For each 8-hour shift, a record of employees employed under air pressure shall be kept by an employee who shall remain outside the lock near the entrance. This record shall show the period each employee spends in the air chamber and the time taken from decompression. A copy shall be submitted to the appointed physician after each shift.

The air in the workplace shall be analyzed by the employer not less than once each shift, and records of such tests shall be kept on file at the place where the work is in progress. The test results shall be within the threshold limit values specified in Subpart D [Occupational Health and Environmental Controls] of this part, for hazardous gases, and within 10 percent of the lower explosive limit of flammable gases. If these limits are not met, immediate action to correct the situation shall be taken by the employer.

Every employee shall be instructed in the rules and regulations which concern his safety or the safety of others.

Be in constant charge of an attendant under the direct control of the retained physician. The attendant shall be trained in the use of the lock and suitably instructed regarding steps to be taken in the treatment of employee exhibiting symptoms compatible with a diagnosis of decompression illness.

Every employee going under air pressure for the first time shall be instructed on how to avoid excessive discomfort.

The air in the workplace shall be analyzed by the employer not less than once each shift, and records of such tests shall be kept on file at the place where the work is in progress. The test results shall be within the threshold limit values specified in Subpart D [Occupational Health and Environmental Controls] of this part, for hazardous gases, and within 10 percent of the lower explosive limit of flammable gases. If these limits are not met, immediate action to correct the situation shall be taken by the employer.

There shall be retained one or more licensed physicians familiar with and experienced in the physical requirements and the medical aspects of compressed air work and the treatment of decompression illness. He shall be available at all times while work is in progress in order to provide medical supervision of employees employed in compressed air work. He shall himself be physically qualified and be willing to enter a pressurized environment.

No employee shall be permitted to enter a compressed air environment until he has been examined by the physician and reported by him to be physically qualified to engage in such work.

In the event an employee is absent from work for 10 days, or is absent due to sickness or injury, he shall not resume work until he is reexamined by the physician, and his physical condition reported, as provided in this paragraph, to be such as to permit him to work in compressed air.

After an employee has been employed continuously in compressed air for a period designated by the physician, but not to exceed 1 year, he shall be reexamined by the physician to determine if he is still physically qualified to engage in compressed air work.
1926.803(d)(3)—For each 8-hour shift, a record of employees employed under air pressure shall be kept by an employee who shall remain outside the lock near the entrance. This record shall show the period each employee spends in the air chamber and the time taken from decompression. A copy shall be submitted to the appointed physician after each shift.

Competent Person

1926.803(a)(1)—There shall be present, at all times, at least one competent person designated by and representing the employer, who shall be familiar with this subpart in all respects, and responsible for full compliance with these and other applicable subparts.

1926.803(h)(1)—At all times there shall be a thoroughly experienced, competent, and reliable person on duty at the air control valves as a gauge tender who shall regulate the pressure in the working areas. During tunneling operations, one gauge tender may regulate the pressure in not more than two headings: Provided, that the gauge and controls are all in one location. In caisson work, there shall be a gauge tender for each caisson.

Qualified Person

1926.803(b)(1)—There shall be retained one or more licensed physicians familiar with and experienced in the physical requirements and the medical aspects of compressed air work and the treatment of decompression illness. He shall be available at all times while work is in progress in order to provide medical supervision of employees employed in compressed air work. He shall himself be physically qualified and be willing to enter a pressurized environment.

Exposure Monitoring

1926.803(i)(2)—The air in the workplace shall be analyzed by the employer not less than once each shift, and records of such tests shall be kept on file at the place where the work is in progress. The test results shall be within the threshold limit values specified in Subpart D [Occupational Health and Environmental Controls] of this part, for hazardous gases, and within 10 percent of the lower explosive limit of flammable gases. If these limits are not met, immediate action to correct the situation shall be taken by the employer.

Signs, Markings and Tags

1926.803(d)(1)—The time of decompression shall be posted in each man lock. [Reference paragraph (d) for specific requirements.]

1926.803(d)(2)—Any code of signals used shall be conspicuously posted near workplace entrances and such other locations as may be necessary to bring them to the attention of all employees concerned.

1926.803(d)(3)—For each 8-hour shift, a record of employees employed under air pressure shall be kept by an employee who shall remain outside the lock near the entrance. This record shall show the period each employee spends in the air chamber and the time taken from decompression. A copy shall be submitted to the appointed physician after each shift.

1926.803(g)(1)(v)—A clock, thermometer, and continuous recording pressure gauge with a 4-hour graph shall be installed outside of each man lock and shall be changed prior to each shift’s decompression. The chart shall be of sufficient size to register a legible record of variations in pressure within the man lock and shall be visible to the lock attendant. A copy of each graph shall be submitted to the appointed physician after each shift. In addition, a pressure gauge clock, and thermometer shall also be installed in each man lock. Additional fittings shall be provided so that test gauges may be attached whenever necessary.

1926.803(g)(2)(i)—The headroom in the special decompression chamber shall be not less than a minimum 7 feet and the cubical content shall provide at least 50 cubic feet of airspace for each employee. For each occupant, there shall be provided 4 square feet of free walking area and 3 square feet of seating space, exclusive of area required for lavatory and toilet facilities. The rated capacity shall be based on the stated minimum space per employee and shall be posted at the chamber entrance. The posted capacity shall not be exceeded, except in case of emergency.
29 CFR Subpart T—Demolition

1926.850—PREPATORY OPERATIONS

**Scope/Application:** This section applies to preparatory operations for demolition.

**STANDARD HIGHLIGHTS**

- Inspections and Tests—testing before demolition
- Recordkeeping—written evidence of survey
- Training and Communications—notifications to utility company
- Competent Person—engineering survey
- Signs, Markings and Tags—warning signs posted

**Inspections and Tests**

1926.850(e)—It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.

**Recordkeeping**

1926.850(a)—Prior to permitting employees to start demolition operations, an engineering survey shall be made, by a competent person, of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked. The employer shall have in writing evidence that such a survey has been performed.

**Training and Communications**

1926.850(c)—All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started. In each case, any utility company which is involved shall be notified in advance.

**Competent Person**

1926.850(a)—Prior to permitting employees to start demolition operations, an engineering survey shall be made, by a competent person, of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked. The employer shall have in writing evidence that such a survey has been performed.

**Signs, Markings and Tags**

1926.850(h)—When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.
1926.851—STAIRS, PASSAGEWAYS, AND LADDERS

**Scope/Application:** This section applies to stairs, passageways, and ladders in demolition.

**STANDARD HIGHLIGHTS**
- Inspections and Tests—periodic inspections

**Inspections and Tests**

1926.851(b)—All stairs, passageways, ladders and incidental equipment thereto, which are covered by this section, shall be periodically inspected and maintain in a clean safe condition.

1926.859—MECHANICAL DEMOLITION

**Scope/Application:** This section applies to mechanical demolition.

**STANDARD HIGHLIGHTS**
- Inspections and Tests—competent person, continuing inspections
- Competent Person—inspections

**Inspections and Tests**

1926.859(g)—During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

**Competent Person**

1926.859(g)—During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.
29 CFR Subpart U—Blasting and the Use of Explosives

1926.900—GENERAL PROVISIONS

Scope/Application: This section provides general provisions for blasting and use of explosives.

STANDARD HIGHLIGHTS

- Recordkeeping—record of inventory use
- Certification—competent person
- Competent Person—evaluate, alternatives in writing
- Signs, Markings and Tags—warning signs

Recordkeeping

1926.900(d)—All explosives shall be accounted for at all times. Explosives not being used shall be kept in a locked magazine, unavailable to persons not authorized to handle them. The employer shall maintain an inventory and use record of all explosives. Appropriate authorities shall be notified of any loss, theft, or unauthorized entry into a magazine.

1926.900(k)(3)(i)—The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.

Certification

1926.900(k)(3)(i)—The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.

Competent Person

1926.900(k)(3)(i)—The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.

Signs, Markings and Tags

1926.900(k)(3)(i)—The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.
1926.901—BLASTER QUALIFICATIONS

Scope/Application: This section provides blaster qualifications.

STANDARD HIGHLIGHTS

- Recordkeeping—evidence of competency
- Training and Communications—understanding of written and oral orders
- Medical Surveillance—physicals for blaster
- Competent Person—blaster
- Qualified Person—trained

Recordkeeping

1926.901(a)—A blaster shall be able to understand and give written and oral orders.

1926.901(d)—Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and performing in a safe manner the type of blasting that will be required.

Training and Communications

1926.901(a)—A blaster shall be able to understand and give written and oral orders.

Medical Surveillance

1926.901(b)—A blaster shall be in good physical condition and not be addicted to narcotics, intoxicants, or similar types of drugs.

Competent Person

1926.901(d)—Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and performing in a safe manner the type of blasting that will be required.

1926.901(e)—The blaster shall be knowledgeable and competent in the use of each type of blasting method used.

Qualified Person

1926.901(c)—A blaster shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of State and local laws and regulations which pertain to explosives.

1926.902—SURFACE TRANSPORTATION OF EXPLOSIVES

Scope/Application: This section provides requirements for surface transportation of explosives.

STANDARD HIGHLIGHTS

- Medical Surveillance—physically fit driver
- Qualified Person—driver qualifications, physically fit, knowledge of regulations
- Signs, Markings and Tags—markings, placarding

Medical Surveillance

1926.902(b)—Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver who is physically fit. He shall be familiar with the local, State, and Federal regulation governing the transportation of explosives.
Qualified Person

1926.902(b)—Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver who is physically fit. He shall be familiar with the local, State, and Federal regulation governing the transportation of explosives.

Signs, Markings and Tags

1926.902(h)—Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word “Explosives” in red letters, not less than 4 inches in height, on white background. In addition to such marking or placarding, the motor vehicle or conveyance may display, in such a manner that it will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word “Explosives” painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.

1926.903—UNDERGROUND TRANSPORTATION OF EXPLOSIVES

Scope/Application: This section provides requirements for underground transportation of explosives.

STANDARD HIGHLIGHTS

• Inspections and Tests—weekly checks, certification record
• Recordkeeping—records kept on file, certification records
• Certification—record

Inspections and Tests

1926.903(e)—Trucks used for the transportation of explosives underground shall have the electrical system checked weekly to detect any failures which may constitute an electrical hazard. A certification record which includes the date of the inspection; the signature of the person who performed the inspection; and a serial number, or other identifier, of the truck inspected shall be prepared and the most recent certification record shall be maintained on file.

Recordkeeping

1926.903(e)—Trucks used for the transportation of explosives underground shall have the electrical system checked weekly to detect any failures which may constitute an electrical hazard. A certification record which includes the date of the inspection; the signature of the person who performed the inspection; and a serial number, or other identifier, of the truck inspected shall be prepared and the most recent certification record shall be maintained on file.

Certification

1926.903(e)—Trucks used for the transportation of explosives underground shall have the electrical system checked weekly to detect any failures which may constitute an electrical hazard. A certification record which includes the date of the inspection; the signature of the person who performed the inspection; and a serial number, or other identifier, of the truck inspected shall be prepared and the most recent certification record shall be maintained on file.

1926.904—STORAGE OF EXPLOSIVES AND BLASTING AGENTS

Scope/Application: This section provides requirements for storage of explosives and blasting agents.

STANDARD HIGHLIGHTS

• Other—Alcohol, Tobacco and Firearms provisions
1926.904(a)—Explosives and related materials shall be stored in approved facilities required under the applicable provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 55, Commerce in Explosives.

1926.905—LOADING OF EXPLOSIVES OR BLASTING AGENTS

Scope/Application: This section provides requirements for loading of explosives and blasting agents.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—procedures established
• Recordkeeping—inventory
• Signs, Markings and Tags—warning signs

Programs, Policies and Procedures

1926.905(a)—Procedures that permit safe and efficient loading shall be established before loading is started.

Recordkeeping

1926.905(t)—The blaster shall keep an accurate, up-to-date record of explosives, blasting agents, and blasting supplies used in a blast and shall keep an accurate running inventory of all explosives and blasting agents stored on the operation.

Signs, Markings and Tags

1926.905(p)—Warning signs, indicating a blast area, shall be maintained at all approaches to the blast area. The warning sign lettering shall not be less than 4 inches in height on a contrasting background.

1926.906—INITIATION OF EXPLOSIVE CHARGES—ELECTRIC BLASTING

Scope/Application: This section provides requirements for the initiation of explosive charges-electric blasting.

STANDARD HIGHLIGHTS

• Inspections and Tests—periodic tests

Inspections and Tests

1926.906(m)—Blasting machines shall be in good condition and the efficiency of the machine shall be tested periodically to make certain that it can deliver power at its rated capacity.

1926.908—USE OF DETONATING CORD

Scope/Application: This section provides requirements for the use of detonating cords.

STANDARD HIGHLIGHTS

• Inspections and Tests—inspections before firing

Inspections and Tests

1926.908(g)—All detonating cord connections shall be inspected before firing the blast.
1926.909—FIRING THE BLAST

Scope/Application: This section provides requirements for firing the blast.

STANDARD HIGHLIGHTS

- Qualified Person—blaster in charge, duties
- Signs, Markings and Tags—posting danger signs, code of blasting signals

Qualified Person

1926.909(b)—Before a blast is fired, a loud warning signal shall be given by the blaster in charge, who has made certain that all surplus explosives are in a safe place and all employees, vehicles, and equipment are at a safe distance, or under sufficient cover.

Signs, Markings and Tags

1926.909(a)—A code of blasting signals equivalent to Table U-1, shall be posted on one or more conspicuous places at the operation, and all employees shall be required to familiarize themselves with the code and conform to it. Danger signs shall be placed at suitable locations.

1926.910—INSPECTION AFTER BLASTING

Scope/Application: This section provides requirements for inspections after blasting.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections

Inspections and Tests

1926.910(b)—Sufficient time shall be allowed, not less than 15 minutes in tunnels, for the smoke and fumes to leave the blasted area before returning to the shot. An inspection of the area and the surrounding rubble shall be made by the blaster to determine if all charges have been exploded before employees are allowed to return to the operation, and in tunnels, after the muck pile has been wetted down.

1926.911—MISFIRES

Scope/Application: This section provides requirements for misfires.

STANDARD HIGHLIGHTS

- Qualified Person—authorized representative

Qualified Person

1926.911(e)—No drilling, digging, or picking shall be permitted until all missed holes have been detonated or the authorized representative has approved that work can proceed.
29 CFR Subpart V—Power Transmission and Distribution

1926.950—GENERAL

Scope/Application: This subpart, except for paragraph (a)(3) of this section, covers the construction of electric power transmission and distribution lines and equipment. As used in this subpart, the term “construction” includes the erection of new electric transmission and distribution lines and equipment, and the alteration, conversion, and improvement of existing electric transmission and distribution lines and equipment. 1926.950(a)(3)—Applicable Part 1910 requirements. Line-clearance tree trimming operations and work involving electric power generation installations shall comply with 29 CFR 1910.269—Electric Power Generation, Transmission and Distribution.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—safety-related practices
• Inspections and Tests—visual inspections or tests, before work, tagging, records
• Recordkeeping—records
• Training and Communications—emergency procedures and first aid training
• Qualified Person—qualified
• Signs, Markings and Tags—tagging

Programs, Policies and Procedures

1926.950(b)(1)(i)—Each employee shall be trained in, and familiar with, the safety-related work practices, safety procedures, and other safety requirements in this subpart that pertain to his or her job assignments.

1926.950(b)(1)(ii)—Each employee shall also be trained in and familiar with any other safety practices, including applicable emergency procedures (such as pole-top and manhole rescue), that are not specifically addressed by this subpart but that are related to his or her work and are necessary for his or her safety.

1926.950(b)(3)—Supervision and annual inspection. 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 required by this subpart.

1926.950(b)(4)(i)—If the supervision or annual inspections required by paragraph (b)(3)[ Supervision and Annual Inspection] of this section indicate that the employee is not complying with the safety-related work practices required by this subpart.

1926.950(b)(4)(ii)—If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use,

1926.950(b)(4)(iii)—If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Note to paragraph (b)(4)(iii): The Occupational Safety and Health Administration considers tasks that are performed less often than once per year to necessitate retraining before the performance of the work practices involved.

1926.950(b)(6)—Training goals. The training shall establish employee proficiency in the work practices required by this subpart and shall introduce the procedures necessary for compliance with this subpart.

1926.950(b)(7)—Demonstration of proficiency. The employer shall ensure that each employee has demonstrated proficiency in the work practices involved before that employee is considered as having completed the training required by paragraph (b) [Training] of this section.

1926.950(e)(1)—Emergency procedures and first aid. The employer shall provide training or require that his employees are knowledgeable and proficient. [Reference paragraph (e)(1) for specific requirements.]
Inspections and Tests

1926.950(b)(3)—Supervision and annual inspection. 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 required by this subpart.

1926.950(b)(4)(i)—If the supervision or annual inspections required by paragraph (b)(3) [Supervision and Annual Inspection] of this section indicate that the employee is not complying with the safety-related work practices required by this subpart.

1926.950(c)(1)(ii)—Conditions that are related to the safety of the work to be performed, that are listed in paragraphs (d) (6) through (d)(8) [Existing Characteristics and Conditions] of this section, and that are known to the host employer;

Note to paragraph (c)(1)(ii): For the purposes of this paragraph, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This paragraph does not require the host employer to make inspections of worksite conditions to obtain this information.

1926.950(c)(1)(iv)—Any other information about the design and operation of the host employer’s installation that is known by the host employer, that the contract employer requests, and that is related to the protection of the contract employer’s employees.

Note to paragraph (c)(1)(iv): For the purposes of this paragraph, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This paragraph does not require the host employer to make inspections of worksite conditions to obtain this information.

1926.950(d)(1)(iii)—After all designated switches and disconnectors have been opened, rendered inoperable, and tagged, visual inspection or tests shall be conducted to insure that equipment or lines have been deenergized.

Recordkeeping

1926.950(c)(1)(ii)—Conditions that are related to the safety of the work to be performed, that are listed in paragraphs (d) (6) through (d)(8) [Existing Characteristics and Conditions] of this section, and that are known to the host employer;

Note to paragraph (c)(1)(ii): For the purposes of this paragraph, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This paragraph does not require the host employer to make inspections of worksite conditions to obtain this information.

1926.950(c)(1)(iv)—Any other information about the design and operation of the host employer’s installation that is known by the host employer, that the contract employer requests, and that is related to the protection of the contract employer’s employees.

Note to paragraph (c)(1)(iv): For the purposes of this paragraph, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This paragraph does not require the host employer to make inspections of worksite conditions to obtain this information.

Training and Communications

1926.950(b)(1)(i)—Each employee shall be trained in, and familiar with, the safety-related work practices, safety procedures, and other safety requirements in this subpart that pertain to his or her job assignments.

1926.950(b)(1)(ii)—Each employee shall also be trained in and familiar with any other safety practices, including applicable emergency procedures (such as pole-top and manhole rescue), that are not specifically addressed by this subpart but that are related to his or her work and are necessary for his or her safety.
1926.950(b)(1)(iii)—The degree of training shall be determined by the risk to the employee for the hazard involved.

1926.950(b)(2)—Qualified employees. Each qualified employee shall also be trained and competent. [Reference (b)(2) for specific requirements.]

Note to paragraph (b)(2): For the purposes of this subpart, a person must have the training required by paragraph (b)(2) [Qualified Person] of this section to be considered a qualified person.

1926.950(b)(4)—Additional training. An employee shall receive additional training (or retraining) under any of the following conditions:

1926.950(b)(4)(i)—If the supervision or annual inspections required by paragraph (b)(3) [Supervision and Annual Inspection] of this section indicate that the employee is not complying with the safety-related work practices required by this subpart.

1926.950(b)(4)(ii)—If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use,

1926.950(b)(4)(iii)—If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Note to paragraph (b)(4)(iii): The Occupational Safety and Health Administration considers tasks that are performed less often than once per year to necessitate retraining before the performance of the work practices involved.

1926.950(b)(5)—Type of training. The training required by paragraph (b) [Training] of this section shall be of the classroom or on-the-job type.

1926.950(b)(6)—Training goals. The training shall establish employee proficiency in the work practices required by this subpart and shall introduce the procedures necessary for compliance with this subpart.

1926.950(b)(7)—Demonstration of proficiency. The employer shall ensure that each employee has demonstrated proficiency in the work practices involved before that employee is considered as having completed the training required by paragraph (b) [Training] of this section.

Note 1 to paragraph (b)(7): Though they are not required by this paragraph, employment records that indicate that an employee has successfully completed the required training are one way of keeping track of when an employee has demonstrated proficiency.

Note 2 to paragraph (b)(7): For an employee with previous training, an employer may determine that that employee has demonstrated the proficiency required by this paragraph using the following process: (1) Confirm that the employee has the training required by paragraph (b) of this section, (2) use an examination or interview to make an initial determination that the employee understands the relevant safety related work practices before he or she performs any work covered by this subpart, and (3) supervise the employee closely until that employee has demonstrated proficiency as required by this paragraph.

1926.950(c)(1)—Host employer responsibilities. Before work begins, the host employer shall inform contract employers of:

1926.950(c)(1)(i)—The characteristics of the host employer’s installation that are related to the safety of the work to be performed and are listed in paragraphs (d)(1) through (d)(5) [Existing Characteristics and Conditions] of this section;

Note to paragraph (c)(1)(i): This paragraph requires the host employer to obtain information listed in paragraphs (d)(1) through (d)(5) [Existing Characteristics and Conditions] of this section if it does not have this information in existing records.
1926.950(c)(1)(ii)—Conditions that are related to the safety of the work to be performed, that are listed in paragraphs (d)(6) through (d)(8) [Existing Characteristics and Conditions] of this section, and that are known to the host employer;

Note to paragraph (c)(1)(ii): For the purposes of this paragraph, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This paragraph does not require the host employer to make inspections of worksite conditions to obtain this information.

1926.950(c)(1)(iii)—Information about the design and operation of the host employer’s installation that the contract employer needs to make the assessments required by this subpart; and

Note to paragraph (c)(1)(iii): This paragraph requires the host employer to obtain information about the design and operation of its installation that contract employers need to make required assessments if it does not have this information in existing records that is known by the host employer, that the contract employer requests, and that is related to the protection of the contract employer’s employees.

Note to paragraph (c)(1)(iv): For the purposes of this paragraph, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This paragraph does not require the host employer to make inspections of worksite conditions to obtain this information.

1926.950(c)(2)(i)—The contract employer shall ensure that each of its employees is instructed in the hazardous conditions relevant to the employee’s work that the contract employer is aware of as a result of information communicated to the contract employer by the host employer under paragraph (c)(1) [Host Employer Responsibilities] of this section.

1926.950(c)(2)(ii)—Before work begins, the contract employer shall advise the host employer of any unique hazardous conditions presented by the contract employer’s work.

1926.950(c)(2)(iii)—The contract employer shall advise the host employer of any unanticipated hazardous conditions found during the contract employer’s work that the host employer did not mention under paragraph (c)(1) [Host Employer Responsibilities] of this section. The contract employer shall provide this information to the host employer within 2 working days after discovering the hazardous condition.

1926.950(e)(1)—Emergency procedures and first aid. The employer shall provide training or require that his employees are knowledgeable and proficient. [Reference paragraph (e)(1) for specific requirements.]

Competent Person

1926.950(b)(2)—Qualified employees. Each qualified employee shall also be trained and competent. [Reference paragraph (b)(2) for specific requirements.]

Note to paragraph (b)(2): For the purposes of this subpart, a person must have the training required by paragraph (b)(2) [Qualified Person] of this section to be considered a qualified person.

Qualified Person

1926.950(b)(2)—Qualified employees. Each qualified employee shall also be trained and competent. [Reference paragraph (b)(2) for specific requirements.]

Note to paragraph (b)(2): For the purposes of this subpart, a person must have the training required by paragraph (b)(2) [Qualified Person] of this section to be considered a qualified person.
Signs, Markings and Tags

1926.950(d)(1)(ii)(b)—All switches and disconnectors are plainly **tagged** indicating that men are at work.

1926.950(d)(1)(iii)—After all designated switches and disconnectors have been opened, rendered inoperable, and **tagged**, **visual inspection or tests shall be conducted** to insure that equipment or lines have been deenergized.

1926.951—MEDICAL SERVICES AND FIRST AID

**Scope/.Application:** This section applies to medical services and first aid required under Subpart V—Power Transmission and Distribution.

**STANDARD HIGHLIGHTS**

- Training and Communications—first aid training

Training and Communications

1926.951(b)—First-aid training. In addition to the requirements of § 1926.50 [Medical Services and First Aid], when employees are performing work on, or associated with, exposed lines or equipment energized at 50 volts or more, persons with first-aid training shall be available as follows:

1926.951(b)(1)—Field work. For field work involving two or more employees at a work location, **at least two trained persons** shall be available.

1926.952—JOB BRIEFING

**Scope/Application:** This section applies to job briefings required under Subpart V—Power Transmission and Distribution.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—procedures, special precautions
- Training and Communications—information, briefings
- Qualified Person—job briefings

Programs, Policies and Procedure

1926.952(b)—Subjects to be covered. The **briefing shall cover** at least the following subjects: Hazards associated with the job, work procedures involved, special precautions, energy-source controls, and personal protective equipment requirements.

1926.952(e)—Working alone. An employee working alone need not conduct a job briefing. However, the employer shall ensure that the tasks to be **performed are planned** as if a briefing were required.

Training and Communications

1926.952(a)(91)—**Before each job. Information provided by the employer.** In assigning an employee or a group of employees to perform a job, the employer shall provide the employee in charge of the job with all available information that relates to the determination of existing characteristics and conditions required by § 1926.950(d)—Existing Characteristics and Conditions.

1926.952(a)(2)—**Briefing by the employee in charge.** The employer shall ensure that the employee in charge conducts a job briefing that meets paragraphs (b)—Subjects to be Covered, (c)—Number of Briefings, and (d)—Extent of Briefing of this section with the employees involved before they start each job.

1926.952(b)—**Subjects to be covered.** The briefing shall cover at least the following subjects: Hazards associated with the job, work procedures involved, special precautions, energy-source controls, and personal protective equipment requirements.
1926.952(c)(1)—Number of briefings. At least one before each day or shift. If the work or operations to be performed during the work day or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of each day or shift.

1926.952(c)(2)—Number of briefings. Additional briefings. Additional job briefings shall be held if significant changes, which might affect the safety of the employees, occur during the course of the work.

1926.952(d)(1)—Extent of briefing. Short discussion. A brief discussion is satisfactory if the work involved is routine and if the employees, by virtue of training and experience, can reasonably be expected to recognize and avoid the hazards involved in the job.

1926.952(d)(2)—Detailed discussion. A more extensive discussion shall be conducted:

- 1926.952(d)(2)(i)—If the work is complicated or particularly hazardous, or
- 1926.952(d)(2)(ii)—If the employee cannot be expected to recognize and avoid the hazards involved in the job.

Qualified Person

1926.952(a)(91)—Before each job. Information provided by the employer. In assigning an employee or a group of employees to perform a job, the employer shall provide the employee in charge of the job with all available information that relates to the determination of existing characteristics and conditions required by § 1926.950(d)—Existing Characteristics and Conditions.

1926.952(a)(2)—Briefing by the employee in charge. The employer shall ensure that the employee in charge conducts a job briefing that meets paragraphs (b)—Subjects to be Covered, (c)—Number of Briefings, and (d)—Extent of Briefing of this section with the employees involved before they start each job.

1926.953—ENCLOSED SPACES

Scope/Application: This section applies covers enclosed spaces that may be entered by employees. It does not apply to vented vaults if the employer makes a determination that the ventilation system is operating to protect employees before they enter the space. This section applies to routine entry into enclosed spaces required under Subpart V—Power Transmission and Distribution.

If, after the employer takes the precautions given in this section and in § 1926.965—Underground Electrical Installations, the hazards remaining in the enclosed space endanger the life of an entrant or could interfere with an entrant’s escape from the space, then entry into the enclosed space shall meet the permit-space entry requirements of paragraphs (d) through (k) of § 1910.146—Permit-Required Confined Spaces

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—procedures, special precautions
- Inspections and Tests—testing
- Training and Communications—information, briefings
- Exposure Monitoring—testing spaces
- Qualified Person—first aid training, attendants

Programs, Policies and Procedure

1926.953(b)—Safe work practices. The employer shall ensure the use of safe work practices for entry into, and work in, enclosed spaces and for rescue of employees from such spaces.

1926.953(c)—Training. Each employee who enters an enclosed space or who serves as an attendant shall be trained in the hazards of enclosed-space entry, in enclosed-space entry procedures, and in enclosed-space rescue procedures.
1926.953(e)—Evaluating potential hazards. Before any entrance cover to an enclosed space is removed, the employer shall determine whether it is safe to do so by checking for the presence of any atmospheric pressure or temperature differences and by evaluating whether there might be a hazardous atmosphere in the space. Any conditions making it unsafe to remove the cover shall be eliminated before the cover is removed.

Note to paragraph (e): The determination called for in this paragraph may consist of a check of the conditions that might foreseeably be in the enclosed space. For example, the cover could be checked to see if it is hot and, if it is fastened in place, could be loosened gradually to release any residual pressure. An evaluation also needs to be made of whether conditions at the site could cause a hazardous atmosphere, such as an oxygen-deficient or flammable atmosphere, to develop within the space.

1926.953(j)—Testing for oxygen deficiency. Before an employee enters an enclosed space, the atmosphere in the enclosed space shall be tested for oxygen deficiency with a direct-reading meter or similar instrument, capable of collection and immediate analysis of data samples without the need for offsite evaluation. If continuous forced-air ventilation is provided, testing is not required provided that the procedures used ensure that employees are not exposed to the hazards posed by oxygen deficiency.

1926.953(l)—Ventilation, and monitoring for flammable gases or vapors. If flammable gases or vapors are detected or if an oxygen deficiency is found, forced-air ventilation shall be used to maintained oxygen at a safe level and to prevent a hazardous concentration of flammable gases and vapors from accumulating. A continuous monitoring program to ensure that no increase in flammable gas or vapor concentration above safe levels occurs may be followed in lieu of ventilation if flammable gases or vapors are initially detected at safe levels.

1926.953(m)—Specific ventilation requirements. If continuous forced-air ventilation is used, it shall begin before entry is made and shall be maintained long enough for the employer to be able to demonstrate that a safe atmosphere exists before employees are allowed to enter the work area. The forced-air ventilation shall be so directed as to ventilate the immediate area where employees are present within the enclosed space and shall continue until all employees leave the enclosed space.

Inspections and Tests

1926.953(j)—Testing for oxygen deficiency. Before an employee enters an enclosed space, the atmosphere in the enclosed space shall be tested for oxygen deficiency with a direct-reading meter or similar instrument, capable of collection and immediate analysis of data samples without the need for offsite evaluation. If continuous forced-air ventilation is provided, testing is not required provided that the procedures used ensure that employees are not exposed to the hazards posed by oxygen deficiency.

1926.953(k)—Testing for flammable gases and vapors. Before an employee enters an enclosed space, the internal atmosphere shall be tested for flammable gases and vapors with a direct-reading meter or similar instrument capable of collection and immediate analysis of data samples without the need for off-site evaluation. This test shall be performed after the oxygen testing and ventilation required by paragraph (j) Testing for Oxygen Deficiency of this section demonstrate that there is sufficient oxygen to ensure the accuracy of the test for flammability.

1926.953(o)—Open flames. If open flames are used in enclosed spaces, a test for flammable gases and vapors shall be made immediately before the open flame device is used and at least once per hour while the device is used in the space. Testing shall be conducted more frequently if conditions present in the enclosed space indicate that once per hour is insufficient to detect hazardous accumulations of flammable gases or vapors.

Training and Communications

1926.953(c)—Training. Each employee who enters an enclosed space or who serves as an attendant shall be trained in the hazards of enclosed-space entry, in enclosed-space entry procedures, and in enclosed-space rescue procedures.

1926.953(h)—Attendants. While work is being performed in the enclosed space, an attendant with first-aid training shall be immediately available outside the enclosed space to provide assistance if a hazard exists because of traffic patterns in the area of the opening used for entry. The attendant is not precluded from performing other duties outside the enclosed space if these
duties do not distract the attendant from: Monitoring employees within the space or ensuring that it is safe for employees to enter and exit the space.

**Exposure Monitoring**

1926.953(l)—Ventilation, and monitoring for flammable gases or vapors. If flammable gases or vapors are detected or if an oxygen deficiency is found, forced-air ventilation shall be used to maintained oxygen at a safe level and to prevent a hazardous concentration of flammable gases and vapors from accumulating. A continuous monitoring program to ensure that no increase in flammable gas or vapor concentration above safe levels occurs may be followed in lieu of ventilation if flammable gases or vapors are initially detected at safe levels.

1926.953(m)—Specific ventilation requirements. If continuous forced-air ventilation is used, it shall begin before entry is made and shall be maintained long enough for the employer to be able to demonstrate that a safe atmosphere exists before employees are allowed to enter the work area. The forced-air ventilation shall be so directed as to ventilate the immediate area where employees are present within the enclosed space and shall continue until all employees leave the enclosed space.

1926.953(o)—Open flames. If open flames are used in enclosed spaces, a test for flammable gases and vapors shall be made immediately before the open flame device is used and at least once per hour while the device is used in the space. Testing shall be conducted more frequently if conditions present in the enclosed space indicate that once per hour is insufficient to detect hazardous accumulations of flammable gases or vapors.

**Qualified Person**

1926.953(c)—Training. Each employee who enters an enclosed space or who serves as an attendant shall be trained in the hazards of enclosed-space entry, in enclosed-space entry procedures, and in enclosed-space rescue procedures.

1926.953(h)—Attendants. While work is being performed in the enclosed space, an attendant with first-aid training shall be immediately available outside the enclosed space to provide assistance if a hazard exists because of traffic patterns in the area of the opening used for entry. The attendant is not precluded from performing other duties outside the enclosed space if these duties do not distract the attendant from: Monitoring employees within the space or ensuring that it is safe for employees to enter and exit the space.

**1926.954—PERSONAL PROTECTIVE EQUIPMENT**

**Scope/Application:** This section applies to personal protective equipment required under Subpart V—Power Transmission and Distribution.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—proficiency, demonstrate
- Inspections and Tests—inspections
- Qualified Person—qualified person

**Programs, Policies and Procedures**

1926.954(b)(3)(iii)(C)—Until March 31, 2015, a qualified employee climbing or changing location on poles, towers, or similar structures need not use fall protection equipment, unless conditions, such as, but not limited to, ice, high winds, the design of the structure (for example, no provision for holding on with hands), or the presence of contaminants on the structure, could cause the employee to lose his or her grip or footing. On and after April 1, 2015, each qualified employee climbing or changing location on poles, towers, or similar structures unless the employer can demonstrate that climbing or changing location with fall protection is infeasible or creates a greater hazard than climbing or changing location without it.

**Note 2 to paragraphs (b)(3)(iii)(B) and (b)(3)(iii)(C):** Until the employer ensures that employees are proficient in climbing and the use of fall protection under § 1926.950(b)(7), the employees are not considered “qualified employees” for the purposes of
paragraphs (b)(3)(iii)(B) and (b)(3)(iii)(C) of this section. These paragraphs require unqualified employees (including trainees) to use fall protection any time they are more than 1.2 meters (4 feet) above the ground.

Inspections and Tests

1926.954(b)(3)(i)—Work-positioning equipment shall be inspected before use each day to determine that the equipment is in safe working condition. Work-positioning equipment that is not in safe working condition may not be used.

Note to paragraph (b)(3)(i): Appendix F to this subpart contains guidelines for inspecting work-positioning equipment.

Qualified Person

1926.954(b)(3)(iii)(C)—Until March 31, 2015, a qualified employee climbing or changing location on poles, towers, or similar structures need not use fall protection equipment, unless conditions, such as, but not limited to, ice, high winds, the design of the structure (for example, no provision for holding on with hands), or the presence of contaminants on the structure, could cause the employee to lose his or her grip or footing. On and after April 1, 2015, each qualified employee climbing or changing location on poles, towers, or similar structures unless the employer can demonstrate that climbing or changing location with fall protection is infeasible or creates a greater hazard than climbing or changing location without it.

Note 2 to paragraphs (b)(3)(iii)(B) and (b)(3)(iii)(C): Until the employer ensures that employees are proficient in climbing and the use of fall protection under §1926.950(b)(7), the employees are not considered “qualified employees” for the purposes of paragraphs (b)(3)(iii)(B) and (b)(3)(iii)(C) of this section. These paragraphs require unqualified employees (including trainees) to use fall protection any time they are more than 1.2 meters (4 feet) above the ground.

1926.955—PORTABLE LADDERS AND PLATFORMS

Scope/Application: This section applies to portable ladders and platforms required under Subpart V—Power Transmission and Distribution. Requirements for portable ladders contained in Subpart X—Stairways and Ladders of this part apply in addition to the requirements of this section, except as specifically noted in paragraph (b) of this section.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—demonstrate

Programs, Policies and Procedures

1926.955(c)—Conductive ladders. Portable metal ladders and other portable conductive ladders may not be used near exposed energized lines or equipment. However, in specialized high-voltage work, conductive ladders shall be used when the employer demonstrates that nonconductive ladders would present a greater hazard to employees than conductive ladders.

1926.957—LIVE-LINE TOOLS

Scope/Application: This section applies to live-line tools required under Subpart V—Power Transmission and Distribution.

STANDARD HIGHLIGHTS

• Inspections and Tests—inspections, tests

Inspections and Tests

1926.957(a)—Design of tools. Live-line tool rods, tubes, and poles shall be designed and constructed to withstand minimum tests. [Reference paragraph (a) for further requirements.]

1926.957(b)(1)—Daily inspection. Each live-line tool shall be wiped clean and visually inspected for defects before use each day.
1926.957(b)(2)—Defects. If any defect or contamination that could adversely affect the insulating qualities or mechanical integrity of the live-line tool is present after wiping, the tool shall be removed from service and examined and tested according to paragraph (b)(3) [Biennial inspection and testing] of this section before being returned to service.

1926.957(b)(3)—Biennial inspection and testing. Live-line tools used for primary employee protection shall be removed from service every 2 years, and whenever required under paragraph (b)(2) of this section, for examination, cleaning, repair, and testing. [Reference paragraph (b) for further requirements.]

1926.957(b)(3)(i)—Each tool shall be thoroughly examined for defects.

1926.957(b)(3)(iv)—The test method used shall be designed to verify the tool’s integrity along its entire working length and, if the tool is made of fiberglass-reinforced plastic, its integrity under wet conditions.

1926.957(b)(3)(v)(C)—Other tests that the employer can demonstrate are equivalent.

Note to paragraph (b): Guidelines for the examination, cleaning, repairing, and inservice testing of live-line tools are specified in the Institute of Electrical and Electronics Engineers’ IEEE Guide for Maintenance Methods on Energized Power Lines, IEEE Std 516-2009.

1926.958—MATERIALS HANDLING AND STORAGE

Scope/ Application: This section applies to materials handling and storage required under Subpart V—Power Transmission and Distribution. Materials handling and storage shall comply with applicable material-handling and material-storage requirements in this part, including those in Subparts N—Helicopters, Hoists, Elevators, and Conveyors and CC—Cranes & Derricks in Construction of this part.

STANDARD HIGHLIGHTS

• Qualified Person—qualified person

Qualified Person

1926.958(b)(1)—Unrestricted areas. In areas to which access is not restricted to qualified persons only, materials or equipment may not be stored closer to energized lines or exposed energized parts of equipment than the following distances, plus a distance that provides for the maximum sag and side swing of all conductors and for the height and movement of material-handling equipment:

1926.958(b)(2)—Restricted areas. In areas restricted to qualified employees, materials may not be stored within the working space about energized lines or equipment.

Note to paragraph (b)(2): Paragraph (b) of § 1926.966—Substations specifies the size of the working space.

1926.959—MECHANICAL EQUIPMENT

Scope/App lication: This section applies to mechanical equipment required under Subpart V—Power Transmission and Distribution. Mechanical equipment shall be operated in accordance with applicable requirements in this part, including Subparts N—Helicopters, Hoists, Elevators, and Conveyors, O—Motor Vehicles, Mechanical Equipment, and Marine Operations, and CC—Cranes & Derricks in Construction of this part, except that § 1926.600(a)(6)—Equipment does not apply to operations performed by qualified employees.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—demonstrate, measures
• Inspections and Tests—inspections
• Qualified Person—qualified person
Program, Policies and Procedures

1926.959(d)(3)(iii)—Each employee shall be protected from hazards that could arise from mechanical equipment contact with energized lines or equipment. The measures used shall ensure that employees will not be exposed to hazardous differences in electric potential. Unless the employer can demonstrate that the methods in use protect each employee from the hazards that could arise if the mechanical equipment contacts the energized line or equipment, the measures used shall include all of the following techniques: [Reference paragraph (d)(3)(iii) for specific information.]

Inspections and Tests

1926.959(a)(2)—Inspection before use. The critical safety components of mechanical elevating and rotating equipment shall receive a thorough visual inspection before use on each shift.

Qualified Person

1926.959(d)(1)—Minimum approach distance. Mechanical equipment shall be operated so that the minimum approach distances, established by the employer under § 1926.960(c)(1)(i)—Equipment, are maintained from exposed energized lines and equipment. However, the insulated portion of an aerial lift operated by a qualified employee in the lift is exempt from this requirement if the applicable minimum approach distance is maintained between the uninsulated portions of the aerial lift and exposed objects having a different electrical potential.

1926.960—WORKING ON OR NEAR EXPOSED ENERGIZED PARTS

Scope/Application: This section applies to working on or near exposed energized parts required under Subpart V—Power Transmission and Distribution.

STANDARD HIGHLIGHTS

• Inspections and Tests—inspections, hazard assessment
• Qualified Person—qualified person

Inspections and Tests

1926.960(g)(1)—Hazard assessment. The employer shall assess the workplace to identify employees exposed to hazards from flames or from electric arcs.

1926.960(j)—Non-current-carrying metal parts. Non-current-carrying metal parts of equipment or devices, such as transformer cases and circuit-breaker housings, shall be treated as energized at the highest voltage to which these parts are exposed, unless the employer inspects the installation and determines that these parts are grounded before employees begin performing the work.

Qualified Person

1926.960(b)(1)(i)—Only qualified employees may work on or with exposed energized lines or parts of equipment.

1926.960(b)(1)(ii)—Only qualified employees may work in areas containing unguarded, uninsulated energized lines or parts of equipment operating at 50 volts or more.

1926.961—DEENERGIZING LINES AND EQUIPMENT FOR EMPLOYEE PROTECTION

Scope/Application: This section applies to the deenergizing of transmission and distribution lines and equipment for the purpose of protecting employees. Conductors and parts of electric equipment that have been deenergized under procedures other than those required by this section shall be treated as energized.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—procedures
• Training and Communications—requests
• Qualified Person—operator in charge, designated person
• Signs, Markings and Tags—tags

Programs, Policies and Procedures

1926.961(c)(4)(iii)—The employer has procedures for manually overriding any network protector that incorporate provisions for determining, before anyone places a network protector in a closed position, that: The line connected to the network protector is not deenergized for the protection of any employee working on the line; and (if the line connected to the network protector is not deenergized for the protection of any employee working on the line) the primary conductors for the network protector are energized.

Training and Communications

1926.961(c)(9)—Transferring clearances. To transfer the clearance, the employee in charge (or the employee’s supervisor if the employee in charge must leave the worksite due to illness or other emergency) shall inform the system operator and employees in the crew; and the new employee in charge shall be responsible for the clearance.

1926.961(c)(10)(i)—Notify each employee under that clearance of the pending release of the clearance;

1926.961(c)(11)—Person releasing clearance. Only the employee in charge who requested the clearance may release the clearance, unless the employer transfers responsibility under paragraph (c)(9)—Transferring Clearances of this section.

Qualified Person

1926.961(b)(1)—System operator. If a system operator is in charge of the lines or equipment and their means of disconnection, the employer shall designate one employee in the crew to be in charge of the clearance and shall comply with all of the requirements of paragraph (c)—Deenergizing Lines and Equipment of this section in the order specified.

1926.961(b)(2)—No system operator. If no system operator is in charge of the lines or equipment and their means of disconnection, the employer shall designate one employee in the crew to be in charge of the clearance and to perform the functions that the system operator would otherwise perform under this section. All of the requirements of paragraph (c)—Deenergizing Lines and Equipment of this section apply, in the order specified, except as provided in paragraph (b)(3)—Single crews working with the means of disconnection under the control of the employee in charge of the clearance of this section.

1926.961(b)(3)—Single crews working with the means of disconnection under the control of the employee in charge of the clearance. If only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to, and under the sole control of, the employee in charge of the clearance, paragraphs (c)(1), (c)(3), and (c)(5)—Deenergizing Lines and Equipment of this section do not apply. Additionally, the employer does not need to use the tags required by the remaining provisions of paragraph (c)—Deenergizing Lines and Equipment of this section.

1926.961(b)(4)(i)—The crews shall coordinate their activities under this section with a single employee in charge of the clearance for all of the crews and follow the requirements of this section as if all of the employees formed a single crew.

1926.961(b)(4)(ii)—Each crew shall independently comply with this section and, if there is no system operator in charge of the lines or equipment, shall have separate tags and coordinate deenergizing and reenergizing the lines and equipment with the other crews.

1926.961(c)(1)—Request to deenergize. The employee that the employer designates pursuant to paragraph (b)—General of this section as being in charge of the clearance shall make a request of the system operator to deenergize the particular section of line or equipment. The designated employee becomes the employee in charge (as this term is used in paragraph (c)—Deenergizing Lines and Equipment of this section) and is responsible for the clearance.
1926.961(c)(6)—Test for energized condition. After the applicable requirements in paragraphs (c)(1) through (c)(5)—Deenergizing Lines and Equipment of this section have been followed and the system operator gives a clearance to the employee in charge, the employer shall ensure that the lines and equipment are deenergized by testing the lines and equipment to be worked with a device designed to detect voltage.

1926.961(c)(9)—Transferring clearances. To transfer the clearance, the employee in charge (or the employee’s supervisor if the employee in charge must leave the worksite due to illness or other emergency) shall inform the system operator and employees in the crew; and the new employee in charge shall be responsible for the clearance.

1926.961(c)(11)—Person releasing clearance. Only the employee in charge who requested the clearance may release the clearance, unless the employer transfers responsibility under paragraph (c)(9)—Transferring Clearances of this section.

Signs, Markings and Tags

1926.961(b)(4)(ii)—Each crew shall independently comply with this section and, if there is no system operator in charge of the lines or equipment, shall have separate tags and coordinate deenergizing and reenergizing the lines and equipment with the other crews.

1926.961(b)(3)—Single crews working with the means of disconnection under the control of the employee in charge of the clearance. If only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to, and under the sole control of, the employee in charge of the clearance, paragraphs (c)(1), (c)(3), and (c)(5)—Deenergizing Lines and Equipment of this section do not apply. Additionally, the employer does not need to use the tags required by the remaining provisions of paragraph (c)—Deenergizing Lines and Equipment of this section.

1926.961(c)(2)—Open disconnecting means. The employer shall ensure that all switches, disconnectors, jumpers, taps, and other means through which known sources of electric energy may be supplied to the particular lines and equipment to be deenergized are open. The employer shall render such means inoperable, unless its design does not so permit, and then ensure that such means are tagged to indicate that employees are at work.

1926.961(c)(3)—Automatically and remotely controlled switches. The employer shall ensure that automatically and remotely controlled switches that could cause the opened disconnecting means to close are also tagged at the points of control. The employer shall render the automatic or remote control feature inoperable, unless its design does not so permit.

1926.961(c)(4)—Network protectors. The employer need not use the tags mentioned in paragraphs (c)(2) and (c)(3)—Deenergizing Lines and Equipment of this section on a network protector for work on the primary feeder for the network protector’s associated network transformer when the employer can demonstrate all of the following conditions: [Reference paragraph (c)(4) for specific information.]

1926.961(c)(5)—Tags. Tags shall prohibit operation of the disconnecting means and shall indicate that employees are at work.

1926.961(c)(6)—Test for energized condition. After the applicable requirements in paragraphs (c)(1) through (c)(5)—Deenergizing Lines and Equipment of this section have been followed and the system operator gives a clearance to the employee in charge, the employer shall ensure that the lines and equipment are deenergized by testing the lines and equipment to be worked with a device designed to detect voltage.

1926.961(c)(12)—Removal of tags. No one may remove tags without the release of the associated clearance as specified under paragraphs (c)(10) and (c)(11)—Releasing Clearances of this section.

1926.961(c)(13)—Reenergizing lines and equipment. The employer shall ensure that no one initiates action to reenergize the lines or equipment at a point of disconnection until all protective grounds have been removed, all crews working on the lines or equipment release their clearances, all employees are clear of the lines and equipment, and all protective tags are removed from that point of disconnection.
1926.962—GROUNDING FOR THE PROTECTION OF EMPLOYEES

Scope/Application: This section applies to grounding of transmission and distribution lines and equipment for the purpose of protecting employees. Paragraph (d) of this section also applies to protective grounding of other equipment as required elsewhere in this Subpart. This section covers grounding of transmission and distribution lines and equipment when this subpart requires protective grounding and whenever the employer chooses to ground such lines and equipment for the protection of employees.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—procedures, measures
- Inspections and Tests—tests

Programs, Policies and Procedures

1926.962(c)—Equipotential zone. Temporary protective grounds shall be placed at such locations and arranged in such a manner that the employer can demonstrate will prevent each employee from being exposed to hazardous differences in electric potential.

1926.962(e)—Testing. The employer shall ensure that, unless a previously installed ground is present, employees test lines and equipment and verify the absence of nominal voltage before employees install any ground on those lines or that equipment.

1926.962(f)(1)—Order of connection. The employer shall ensure that, when an employee attaches a ground to a line or to equipment, the employee attaches the ground-end connection first and then attaches the other end by means of a liveline tool. For lines or equipment operating at 600 volts or less, the employer may permit the employee to use insulating equipment other than a live-line tool if the employer ensures that the line or equipment is not energized at the time the ground is connected or if the employer can demonstrate that each employee is protected from hazards that may develop if the line or equipment is energized.

1926.962(f)(2)—Order of removal. The employer shall ensure that, when an employee removes a ground, the employee removes the grounding device from the line or equipment using a live-line tool before he or she removes the groundend connection. For lines or equipment operating at 600 volts or less, the employer may permit the employee to use insulating equipment other than a live-line tool if the employer ensures that the line or equipment is not energized at the time the ground is disconnected or if the employer can demonstrate that each employee is protected from hazards that may develop if the line or equipment is energized.

1926.962(h)—Removal of grounds for test. The employer may permit employees to remove grounds temporarily during tests. During the test procedure, the employer shall ensure that each employee uses insulating equipment, shall isolate each employee from any hazards involved, and shall implement any additional measures necessary to protect each exposed employee in case the previously grounded lines and equipment become energized.

Inspections and Tests

1926.962(e)—Testing. The employer shall ensure that, unless a previously installed ground is present, employees test lines and equipment and verify the absence of nominal voltage before employees install any ground on those lines or that equipment.

1926.962(h)—Removal of grounds for test. The employer may permit employees to remove grounds temporarily during tests. During the test procedure, the employer shall ensure that each employee uses insulating equipment, shall isolate each employee from any hazards involved, and shall implement any additional measures necessary to protect each exposed employee in case the previously grounded lines and equipment become energized.

1926.963—TESTING AND TEST FACILITIES

Scope/Application: This section provides for safe work practices for high-voltage and high-power testing performed in laboratories, shops, and substations, and in the field and on electric transmission and distribution lines and equipment. It applies only to testing involving interim measurements using high voltage, high power, or combinations of high voltage and
high power, and not to testing involving continuous measurements as in routine metering, relaying, and normal line work. OSHA considers routine inspection and maintenance measurements made by qualified employees to be routine line work not included in the scope of this section, provided that the hazards related to the use of intrinsic high voltage or high-power sources require only the normal precautions associated with routine work specified in the other paragraphs of this subpart. Two typical examples of such excluded test work procedures are “phasing-out” testing and testing for a “no-voltage” condition.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—safe work practices
- Inspections and Tests—tests, test area
- Training and Communications—training
- Qualified Person—test operator in charge
- Signs, Markings and Tags—markings

Programs, Policies and Procedures

1926.963(b)(1)—Safe work practices. The employer shall establish and enforce work practices for the protection of each worker from the hazards of high-voltage or high-power testing at all test areas, temporary and permanent. Such work practices shall include, as a minimum, test area safeguarding, grounding, the safe use of measuring and control circuits, and a means providing for periodic safety checks of field test areas.

1926.963(b)(2)—Training. The employer shall ensure that each employee, upon initial assignment to the test area, receives training in safe work practices, with retraining provided as required by § 1926.950(b)—General.

1926.963(d)(1)—Establish and implement practices. The employer shall establish and implement safe grounding practices for the test facility.

1926.963(f)(1)—Before each test. Safety practices governing employee work at temporary or field test areas shall provide, at the beginning of each series of tests, for a routine safety check of such test areas.

Inspections and Tests

1926.963(f)(2)—Conditions to be checked. The test operator in charge shall conduct these routine safety checks before each series of tests and shall verify at least the following conditions. [Reference paragraph (f) for further requirements.]

1926.963(c)(1)—Safeguarding. The employer shall provide safeguarding within test areas to control access to test equipment or to apparatus under test that could become energized as part of the testing by either direct or inductive coupling and to prevent accidental employee contact with energized parts.

1926.963(c)(2)—Permanent test areas. The employer shall guard permanent test areas with walls, fences, or other barriers designed to keep employees out of the test areas.

1926.963(c)(3)—Temporary test areas. In field testing, or at a temporary test site not guarded by permanent fences and gates, the employer shall ensure the use of one of the following means to prevent employees without authorization from entering. [Reference paragraph (c)(3) for specific information.]

1926.963(d)(1)(i)—The employer shall maintain at ground potential all conductive parts accessible to the test operator while the equipment is operating at high voltage.

1926.963(d)(1)(ii)—Wherever ungrounded terminals of test equipment or apparatus under test may be present, they shall be treated as energized until tests demonstrate that they are deenergized.

1926.963(d)(4)—Equipment grounding conductors. For tests in which using the equipment grounding conductor in the equipment power cord to ground the test equipment would result in greater hazards to test personnel or prevent the taking of satisfactory measurements, the employer may use a ground clearly indicated in the test set-up if the employer
can demonstrate that this ground affords protection for employees equivalent to the protection afforded by an equipment grounding conductor in the power supply cord.

1926.963(d)(5)—Grounding after tests. The employer shall ensure that, when any employee enters the test area after equipment is deenergized, a ground is placed on the high-voltage terminal and any other exposed terminals.

1926.963(d)(6)—Grounding test vehicles. If the employer uses a test trailer or test vehicle in field testing, its chassis shall be grounded. The employer shall protect each employee against hazardous touch potentials with respect to the vehicle, instrument panels, and other conductive parts accessible to employees with bonding, insulation, or isolation.

1926.963(f)(1)—Before each test. Safety practices governing employee work at temporary or field test areas shall provide, at the beginning of each series of tests, for a routine safety check of such test areas.

Training and Communications

1926.963(b)(2)—Training. The employer shall ensure that each employee, upon initial assignment to the test area, receives training in safe work practices, with retraining provided as required by §1926.950(b)—General.

Qualified Person

1926.963(c)(3)—Temporary test areas. In field testing, or at a temporary test site not guarded by permanent fences and gates, the employer shall ensure the use of one of the following means to prevent employees without authorization from entering. [Reference paragraph (c)(3) for specific information.]

1926.963(d)(1)(i)—The employer shall maintain at ground potential all conductive parts accessible to the test operator while the equipment is operating at high voltage.

1926.963(e)(4)—Test observer. If any employee will be present in the test area during testing, a test observer shall be present. The test observer shall be capable of implementing the immediate deenergizing of test circuits for safety purposes.

1926.963(f)(2)—Conditions to be checked. The test operator in charge shall conduct these routine safety checks before each series of tests and shall verify at least the following conditions. [Reference paragraph (f) for further requirements.]

Signs, Markings and Tags

1926.963(f)(2)(iii)—Clearly marked test-power disconnects are readily available in an emergency.

1926.964—OVERHEAD LINES AND LIVE-LINE BAREHAND WORK

Scope/Application: This section provides additional requirements for work performed on or near overhead lines and equipment and for live-line barehand work.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—measures, determination, demonstrate, techniques
- Inspections and Tests—checks
- Training and Communications—communications, training

Programs, Policies and Procedures

1926.964(b)(1)—Tension stringing method. When lines that employees are installing or removing can contact energized parts, the employer shall use the tension stringing method, barriers, or other equivalent measures to minimize the possibility that conductors and cables the employees are installing or removing will contact energized power lines or equipment.
1926.964(b)(2)—Conductors, cables, and pulling and tensioning equipment. For conductors, cables, and pulling and tensioning equipment, the employer shall provide the protective measures required by § 1926.959(d)(3)—Extra Precautions when employees are installing or removing a conductor or cable close enough to energized conductors that any of the following failures could energize the pulling or tensioning equipment or the conductor or cable being installed or removed: [Reference paragraph (b)(2) for specific information.]

1926.964(b)(4)(i)—Before employees install lines parallel to existing energized lines, the employer shall make a determination of the approximate voltage to be induced in the new lines, or work shall proceed on the assumption that the induced voltage is hazardous.

1926.964(b)(4)(ii)—Unless the employer can demonstrate that the lines that employees are installing are not subject to the induction of a hazardous voltage or unless the lines are treated as energized, temporary protective grounds shall be placed at such locations and arranged in such a manner that the employer can demonstrate will prevent exposure of each employee to hazardous differences in electric potential.

1926.964(c)(1)—Training. Before an employee uses or supervises the use of the live-line barehand technique on energized circuits, the employer shall ensure that the employee completes training conforming to § 1926.950(b)—Training in the technique and in the safety requirements of paragraph (c)—Live-Line Barehand Work of this section.

1926.964(c)(2)—Existing conditions. Before any employee uses the live-line barehand technique on energized highvoltage conductors or parts, the employer shall ascertain the following information in addition to information about other existing conditions required by § 1926.950(d) Existing characteristics and conditions. [Reference paragraph (c) for further requirements.]

1926.964(c)(5)—Adverse weather conditions. The employer shall ensure that employees do not perform work when adverse weather conditions would make the work hazardous even after the employer implements the work practices required by this subpart. Additionally, employees may not perform work when winds reduce the phase-to-phase or phase-to-ground clearances at the work location below the minimum approach distances specified in paragraph (c)(13)—Minimum Approach Distance of this section, unless insulating guards cover the grounded objects and other lines and equipment.

1926.964(c)(13)—Minimum approach distance. The employer shall ensure that employees maintain the minimum approach distances, established by the employer under § 1926.960(c)(1)(i)—Minimum Approach Distance, from all grounded objects and from lines and equipment at a potential different from that to which the live-line barehand equipment is bonded, unless insulating guards cover such grounded objects and other lines and equipment.

1926.964(c)(14)—Approaching, leaving, and bonding to energized part. The employer shall ensure that, while an employee is approaching, leaving, or bonding to an energized circuit, the employee maintains the minimum approach distances, established by the employer under § 1926.960(c)(1)(i)—Minimum Approach Distance, between the employee and any grounded parts, including the lower boom and portions of the truck and between the employee and conductive objects energized at different potentials.

1926.964(c)(15)—Positioning bucket near energized bushing or insulator string. While the bucket is alongside an energized bushing or insulator string, the employer shall ensure that employees maintain the phase-to-ground minimum approach distances, established by the employer under § 1926.960(c)(1)(i)—Minimum Approach Distance, between all parts of the bucket and the grounded end of the bushing or insulator string or any other grounded surface.

1926.964(d)(1)—Working beneath towers and structures. The employer shall ensure that no employee is under a tower or structure while work is in progress, except when the employer can demonstrate that such a working position is necessary to assist employees working above.

1926.964(d)(2)—Tag lines. The employer shall ensure that employees use tag lines or other similar devices to maintain control of tower sections being raised or positioned, unless the employer can demonstrate that the use of such devices would create a greater hazard to employees.

1926.964(d)(4)—Adverse weather conditions. The employer shall ensure that, except during emergency restoration procedures, employees discontinue work when adverse weather conditions would make the work hazardous in spite of the work practices required by this subpart.
Inspections and Tests

1926.964(a)(2)—Checking structure before climbing. Before allowing employees to subject elevated structures, such as poles or towers, to such stresses as climbing or the installation or removal of equipment may impose, the employer shall ascertain that the structures are capable of sustaining the additional or unbalanced stresses. If the pole or other structure cannot withstand the expected loads, the employer shall brace or otherwise support the pole or structure so as to prevent failure.

1926.964(c)(10)—Check controls. The employer shall ensure that, before employees elevate an aerial lift into the work position, the employees check all controls (ground level and bucket) to determine that they are in proper working condition.

1926.964(c)(12)—Boom-current test. The employer shall ensure that employees perform a boom-current test before starting work each day, each time during the day when they encounter a higher voltage, and when changed conditions indicate a need for an additional test.

1926.964(c)(12)(i)—This test shall consist of placing the bucket in contact with an energized source equal to the voltage to be encountered for a minimum of 3 minutes.

Training and Communications

1926.964(b)(9)—Communications. The employer shall ensure that employees maintain reliable communications, through twoway radios or other equivalent means, between the reel tender and the pullingrig operator.

1926.964(c)(1)—Training. Before an employee uses or supervises the use of the live-line barehand technique on energized circuits, the employer shall ensure that the employee completes training conforming to § 1926.950(b)—Training in the technique and in the safety requirements of paragraph (c)—Live-Line Barehand Work of this section.

1926.964(c)(2)—Existing conditions. Before any employee uses the live-line barehand technique on energized highvoltage conductors or parts, the employer shall ascertain the following information in addition to information about other existing conditions required by § 1926.950(d)—Existing Characteristics and Conditions. [Reference paragraph (c) for further requirements.]

1926.965—UNDERGROUND ELECTRICAL INSTALLATIONS

Scope/Application: This section provides additional requirements for work on underground electrical installations.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—demonstrate
• Inspections and Tests—inspections
• Training and Communications—communications, first aid training
• Qualified Person—first aid trained person

Programs, Policies and Procedures

1926.965(h)(1)—Cables with abnormalities. Where a cable in a manhole or vault has one or more abnormalities that could lead to a fault or be an indication of an impending fault, the employer shall deenergize the cable with the abnormality before any employee may work in the manhole or vault, except when service-load conditions and a lack of feasible alternatives require that the cable remain energized. In that case, employees may enter the manhole or vault provided the employer protects them from the possible effects of a failure using shields or other devices that are capable of containing the adverse effects of a fault. The employer shall treat the following abnormalities as indications of impending faults unless the employer can demonstrate that the conditions could not lead to a fault: Oil or compound leaking from cable or joints, broken cable sheaths or joint sleeves, hot localized surface temperatures of cables or joints, or joints swollen beyond normal tolerance.

1926.965(d)(3)—Entry without attendant. For the purpose of inspection, housekeeping, taking readings, or similar work, an employee working alone may enter, for brief periods of time, a manhole or vault where energized cables or equipment are in service if the employer can demonstrate that the employee will be protected from all electrical hazards.
Inspections and Tests

1926.965(d)(3)—Entry without attendant. For the purpose of inspection, housekeeping, taking readings, or similar work, an employee working alone may enter, for brief periods of time, a manhole or vault where energized cables or equipment are in service if the employer can demonstrate that the employee will be protected from all electrical hazards.

1926.965(g)—Moving cables. Except when paragraph (h)(2)—Work-Related Faults of this section permits employees to perform work that could cause a fault in an energized cable in a manhole or vault, the employer shall ensure that employees inspect energized cables to be moved for abnormalities.

Training and Communications

1926.965(d)(4)—Communications. The employer shall ensure that employees maintain reliable communications, through two way radios or other equivalent means, among all employees involved in the job.

1926.965(d)(1)—When required. While work is being performed in a manhole or vault containing energized electric equipment, an employee with first-aid training shall be available on the surface in the immediate vicinity of the manhole or vault entrance to render emergency assistance.

Qualified Person

1926.965(d)(1)—When required. While work is being performed in a manhole or vault containing energized electric equipment, an employee with first-aid training shall be available on the surface in the immediate vicinity of the manhole or vault entrance to render emergency assistance.

1926.966—SUBSTATIONS

Scope/Application: This section provides additional requirements for substations and for work performed in them.

STANDARD HIGHLIGHTS
- Training and Communications—job briefings
- Qualified Person—qualified person, employee in charge
- Signs, Markings and Tags—signs

Training and Communications

1926.966(g)(2)—Job briefing. The job briefing required by § 1926.952—Job Briefing shall cover information on special system conditions affecting employee safety, including the location of energized equipment in or adjacent to the work area and the limits of any deenergized work area.

Qualified Person

1926.966(e)(2)—Prevent access by unqualified persons. Fences, screens, partitions, or walls shall enclose the rooms and other spaces so as to minimize the possibility that unqualified persons will enter.

1926.966(e)(3)—Restricted entry. Unqualified persons may not enter the rooms or other spaces while the electric supply lines or equipment are energized.

1926.966(e)(4)—Warning signs. The employer shall display signs at entrances to the rooms and other spaces warning unqualified persons to keep out.

1926.966(e)(5)—Entrances to rooms and other. The employer shall keep each entrance to a room or other space locked, unless the entrance is under the observation of a person who is attending the room or other space for the purpose of preventing unqualified employees from entering.
1926.966(f)(2)—Maintaining guards during operation. Except for fuse replacement and other necessary access by qualified persons, the employer shall maintain guarding of energized parts within a compartment during operation and maintenance functions to prevent accidental contact with energized parts and to prevent dropped tools or other equipment from contacting energized parts.

1926.966(g)(1)—Report upon entering. Upon entering an attended substation, each employee, other than employees regularly working in the station, shall report his or her presence to the employee in charge of substation activities to receive information on special system conditions affecting employee safety.

Signs, Markings and Tags

1926.966(e)(4)—Warning signs. The employer shall display signs at entrances to the rooms and other spaces warning unqualified persons to keep out.

1926.967—SPECIAL CONDITIONS

Scope/Application: This section provides requirements for special conditions.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections
- Signs, Markings and Tags—signs

Inspections and Tests

1926.967(e)(2)—Maintaining flotation devices in safe condition. The employer shall maintain each personal flotation device in safe condition and shall inspect each personal flotation device frequently enough to ensure that it does not have rot, mildew, water saturation, or any other condition that could render the device unsuitable for use.

Signs, Markings and Tags

1926.967(g)(1)—Traffic control devices. Traffic-control signs and traffic-control devices used for the protection of employees shall meet § 1926.200(g)(2).

1926.967(g)(2)—Controlling traffic. Before employees begin work in the vicinity of vehicular or pedestrian traffic that may endanger them, the employer shall place warning signs or flags and other traffic control devices in conspicuous locations to alert and channel approaching traffic.
29 CFR Subpart W—Rollover Protective Structures; Overhead Protection

1926.1000—ROLLOVER PROTECTIVE STRUCTURES (ROPS) FOR MATERIAL HANDLING EQUIPMENT

Scope/Application: This section applies to the following types of material handling equipment: To all rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in construction work.

Exception: This requirement does not apply to sideboom pipelaying tractors.

STANDARD HIGHLIGHTS

• Signs, Markings and Tags—labels affixed to structure

Signs, Markings and Tags

1926.1000(e)—Labeling. Each ROPS shall have information permanently affixed to the structure. [Reference paragraph (e) for specific requirements.]

1926.1001—MINIMUM PERFORMANCE CRITERIA FOR ROLLOVER PROTECTIVE STRUCTURES FOR DESIGNATED SCRAPERS, LOADERS, DOZERS, GRADERS, AND CRAWLER TRACTORS

Scope/Application: This section prescribes minimum performance criteria for rollover protective structures (ROPS) for rubber-tired self-propelled scrapers; rubber-tired front-end loaders and rubber-tired dozers; crawler tractors, and crawler-type loaders, and motor graders. The vehicle and ROPS as a system shall have the structural characteristics prescribed in paragraph (f) [Performance Requirements] of this section for each type of machine described in this paragraph.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—test procedures
• Inspections and Tests—static laboratory tests
• Recordkeeping—certification
• Certification—material certification

Programs, Policies and Procedures

1926.1001(e)—Test procedure. The test procedure shall include requirements in a specific sequence. [Reference paragraph (e) for specific requirements.]

1926.1001(f)(2)(iii)—The load magnitude for purposes of compliance with paragraph (e)(2)—Test Procedure of this section is equal to the vehicle weight. The test of load magnitude shall only be made after the requirements of paragraph (f)(2)(i) [Specific Performance Requirements] of this section are met.

Inspections and Tests

1926.1001(b)—The static laboratory test prescribed herein will determine the adequacy of the structures used to protect the operator under specific conditions. [Reference paragraph (b) for specific requirements.]

1926.1001(e)—Test procedure. The test procedure shall include requirements in a specific sequence. [Reference paragraph (e) for specific requirements.]

Recordkeeping

1926.1001(e)(3)—The low temperature impact strength of the material used in the ROPS shall be verified by suitable material tests or material certification (see paragraph (f)(2)(iv) [Specific Performance Requirements] of this section).
1926.1001(e)(3)—The low temperature impact strength of the material used in the ROPS shall be verified by suitable material tests or material certification (see paragraph (f)(2)(iv) [Specific Performance Requirements] of this section).

1926.1002—PROTECTIVE FRAMES (ROLL-OVER PROTECTIVE STRUCTURES, KNOWN AS ROPS) FOR WHEEL-TYPE AGRICULTURAL AND INDUSTRIAL TRACTORS USED IN CONSTRUCTION

Scope/Application: The purpose of this section is to set forth requirements for frames used to protect operators of wheel-type agricultural and industrial tractors that will minimize the possibility of operator injury resulting from accidental upsets during normal operation. With respect to agricultural and industrial tractors, the provisions of 29 CFR 1926.1001 [Minimum Performance Criteria for Rollover Protective Structures for Designated Scapers, Loaders, Dozers, Graders, and Crawler Tractors] and 1926.1003 [Overhead Protection for Operators of Agricultural and Industrial Tractors] for rubber-tired dozers and rubber-tired loaders may be used instead of the requirements of this section.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—procedures
• Inspections and Tests—tests, test procedure
• Recordkeeping—tests
• Certification—material certification

Programs, Policies and Procedures

1926.1002(f)—Other test procedures. When the field-upset test is not used to determine ROPS performance, either the static test or the dynamic test, contained in paragraph (g) [Static Test] or (h) [Dynamic Test] of this section, shall be made.

1926.1002(g)(2)(v)—The test procedure shall be repeated on the same frame using L (rear input; see Figure W-18) and Eir. Rear-load application shall be distributed uniformly along a maximum projected dimension of 27 in. (686 mm) and a maximum area of 160 sq. in. (1,032 sq. cm) normal to the direction of load application. The load shall be applied to the upper extremity of the frame at the point that is midway between the centerline of the seat and the inside of the frame upright.

Inspections and Tests

1926.1002(c)(1)—Either a laboratory test or a field test is required to determine the performance requirements set forth in paragraph (i) [Performance Requirements] of this section.

1926.1002(d)(6)—The low-temperature impact strength of the material used in the protective structure shall be verified by suitable material tests or material certifications according to 29 CFR 1926.1001(f)(2)(iv) [Specific Performance Requirements].

1926.1002(e)(2)—Agricultural tractors shall be tested at the weight set forth in paragraph (e)(1) [Vehicle Weight] of this section.

1926.1002(e)(3)—Industrial tractors shall be tested with items of integral or mounted equipment and ballast that are sold as standard equipment or approved by the vehicle manufacturer for use with the vehicle when the protective frame is expected to provide protection for the operator with such equipment installed. The total vehicle weight and front-end weight as tested shall not be less than the weights established in paragraph (e)(1) [Vehicle Weight] of this section.

1926.1002(e)(4)(i)—The test shall be conducted on a dry, firm soil bank as illustrated in Figure W-15. The soil in the impact area shall have an average cone index in the 0-in. to 6-in. (0-mm to 153-mm) layer not less than 150 according to American Society of Agricultural Engineers (“ASAE”) recommendation ASAE R313.1-1971 (“Soil cone penetrometer”), as reconfirmed in 1975, which is incorporated by reference. The incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The path of vehicle travel shall be 12° ± 2° to the top edge of the bank.
1926.1002(f)—Other test procedures. When the field-upset test is not used to determine ROPS performance, either the static test or the dynamic test, contained in paragraph (g) [Static Test] or (h) [Dynamic Test] of this section, shall be made.

1926.1002(g)(2)(v)—The test procedure shall be repeated on the same frame using L (rear input; see Figure W-18) and Eir. Rear-load application shall be distributed uniformly along a maximum projected dimension of 27 in. (686 mm) and a maximum area of 160 sq. in. (1,032 sq. cm) normal to the direction of load application. The load shall be applied to the upper extremity of the frame at the point that is midway between the centerline of the seat and the inside of the frame upright.

1926.1002(h)(1)(vii)—When any cables, props, or blocking shift or break during the test, the test shall be repeated.

1926.1002(i)(3)—Static test performance requirements. Design factors shall be incorporated in each design to withstand the overturn test as specified by this paragraph (i) [Performance Requirements]. The structural requirements will be met generally when FER is greater than 1.0 and FSB is greater than K-1 in both side and rear loadings.

1926.1002(i)(4)—Dynamic test performance requirements. Design factors shall be incorporated in each design to withstand the overturn test specified by this paragraph (i) [Performance Requirements]. The structural requirements will be met generally when the dimensions in this paragraph (i) [Performance Requirements] are used during both side and rear loads.

Recordkeeping

1926.1002(d)(3)—Instantaneous and permanent frame deformation shall be measured and recorded for each segment of the test.

1926.1002(d)(6)—The low-temperature impact strength of the material used in the protective structure shall be verified by suitable material tests or material certifications according to 29 CFR 1926.1001(f)(2)(iv) [Specific Performance Requirements].

Certification

1926.1002(d)(6)—The low-temperature impact strength of the material used in the protective structure shall be verified by suitable material tests or material certifications according to 29 CFR 1926.1001(f)(2)(iv) [Specific Performance Requirements].

1926.1003—OVERHEAD PROTECTION FOR OPERATORS OF AGRICULTURAL AND INDUSTRIAL TRACTORS

Scope/Application: This standard applies to wheel-type agricultural and industrial tractors used in construction work (see 29 CFR 1926.1002(b) [Applicability] and (j) [Definitions]). In the case of machines to which 29 CFR 1926.604 [Site Clearing] also applies, the overhead protection may be either the type of protection provided in 29 CFR 1926.604 [Site Clearing], or the type of protection provided by this section.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—test procedures
- Inspections and Tests—procedures

Programs, Policies and Procedures

1926.1003(d)(1)—Drop test procedure. The same frame shall be subjected to the drop test following either the static or dynamic test.

1926.1003(e)(1)—Crush test procedure. The same frame shall be subjected to the crush test following the drop test and static or dynamic test.
Inspections and Tests

1926.1003(d)(1)—Drop test procedure. The same frame shall be subjected to the drop test following either the static or dynamic test.

1926.1003(e)(1)—Crush test procedure. The same frame shall be subjected to the crush test following the drop test and static or dynamic test.
29 CFR Subpart X—Stairways and Ladders

1926.1053—LADDERS

Scope/Application: This subpart applies to all stairways and ladders used in construction, alteration, repair (including painting and decorating), and demolition workplaces covered under 29 CFR part 1926, and also sets forth, in specified circumstances, when ladders and stairways are required to be provided. Additional requirements for ladders used on or with scaffolds are contained in subpart L—Scaffolds. The following requirements apply to all ladders as indicated, including job-made ladders.

Exception: This subpart does not apply to integral components of equipment covered by subpart CC [Cranes and Derricks in Construction]. Subpart CC exclusively sets forth the circumstances when ladders and stairways must be provided on equipment covered by subpart CC.

STANDARD HIGHLIGHTS

• Inspections and Tests—periodic inspections by competent person
• Competent Person—inspections
• Signs, Markings and Tags—markings, tags

Inspections and Tests

1926.1053(b)(15)—Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

Competent Person

1926.1053(b)(15)—Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

Signs, Markings and Tags

1926.1053(b)(16)—Portable ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with “Do Not Use” or similar language, and shall be withdrawn from service until repaired.

1926.1060—TRAINING REQUIREMENTS

Scope/Application: This subpart applies to all stairways and ladders used in construction, alteration, repair (including painting and decorating), and demolition workplaces covered under 29 CFR part 1926, and also sets forth, in specified circumstances, when ladders and stairways are required to be provided. Additional requirements for ladders used on or with scaffolds are contained in subpart L—Scaffolds.

Exception: This subpart does not apply to integral components of equipment covered by subpart CC [Cranes and Derricks in Construction]. Subpart CC exclusively sets forth the circumstances when ladders and stairways must be provided on equipment covered by subpart CC.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—training program, procedures
• Training and Communications—initial and retraining, competent person
• Competent Person—training
Programs, Policies and Procedures

1926.1060(a)—The employer shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders and stairways, and shall train each employee in the procedures to be followed to minimize these hazards.

Training and Communications

1926.1060(a)—The employer shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders and stairways, and shall train each employee in the procedures to be followed to minimize these hazards.

1926.1060(a)(1)—The employer shall ensure that each employee has been trained by a competent person in specific areas, as applicable. [Reference paragraph (a)(1) for specific requirements.]

1926.1060(b)—Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this section.

Competent Person

1926.1060(a)(1)—The employer shall ensure that each employee has been trained by a competent person in specific areas as applicable. [Reference paragraph (a)(1) for specific requirements.]
29 CFR Subpart Y—Commercial Diving Operations

1926.1076—QUALIFICATIONS OF DIVE TEAM

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.410 [Qualifications of Dive Team] of this chapter.

1910.410—QUALIFICATIONS OF DIVE TEAM

Scope/Application: This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.

Exception: This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 (Protection of Human Subjects, U.S. Department of Health and Human Services) or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.

STANDARD HIGHLIGHTS

• Training and Communications—initial training
  • Qualified Person—designated person-in-charge

Training and Communications

1910.410(a)(1)—Each dive team member shall have the experience or training necessary to perform assigned tasks in a safe and healthful manner. [Reference paragraph (a) for specific information.]

1910.410(c)(2)—The designated person-in-charge shall have experience and training in the conduct of the assigned diving operation.

Qualified Person

1910.410(c)(2)—The designated person-in-charge shall have experience and training in the conduct of the assigned diving operation.

1926.1080—SAFE PRACTICES MANUAL

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.420 [Safe Practices Manual] of this chapter.

1910.420—SAFE PRACTICES MANUAL

Scope/Application: This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.

Exception: This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 (Protection of Human Subjects, U.S. Department of Health and Human Services) or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—safe practices manual, procedures
  • Recordkeeping—manual
Programs, Policies and Procedures

1910.420(a)—General. The employer shall develop and maintain a safe practices manual which shall be made available at the dive location to each dive team member. [Reference paragraph (a)(1) for specific information.]

1910.420(b)(2)—For each diving mode engaged in, the safe practices manual shall include:

1910.420(b)(2)(i)—Safety procedures and checklists for diving operations.

1910.420(b)(2)(iii)—Equipment procedures and checklists.

1910.420(b)(2)(iv)—Emergency procedures for fire, equipment failure, adverse environmental conditions, and medical illness and injury.

Recordkeeping

1910.420(a)—General. The employer shall develop and maintain a safe practices manual which shall be made available at the dive location to each dive team member. [Reference paragraph (a)(1) for specific information.]

1910.420(b)(1)—The safe practices manual shall contain a copy of this standard and the employer’s policies for implementing the requirements of this standard.

1926.1081—PRE-DIVE PROCEDURES

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.421 [Pre-Dive Procedures] of this chapter.

1910.421—PRE-DIVE PROCEDURES

Scope/Application: This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.

Exception: This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 (Protection of Human Subjects, U.S. Department of Health and Human Services) or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—emergency list on-site, first aid handbook on site, reporting procedures
• Inspections and Tests—assessment, inspection before dive
• Recordkeeping—list
• Training and Communications—briefing prior to dive
• Qualified Person—first aid kit approved
• Signs, Markings and Tags—flag displayed

Programs, Policies and Procedures

1910.421(b)—Emergency aid. A list shall be kept at the dive location of the telephone or call numbers.

1910.421(c)(1)—A first aid kit appropriate for the diving operation and approved by a physician shall be available at the dive location.
1910.421(c)(3)—In addition to any other first aid supplies, an American Red Cross standard first aid handbook or equivalent, and a bag-type manual resuscitator with transparent mask and tubing shall be available at the dive location.

1910.421(d)—Planning and assessment. Planning of a diving operation shall include an assessment of the safety and health aspects. [Reference paragraph (d) for specific information.]

1910.421(f)(2)—Prior to making individual dive team member assignments, the employer shall inquire into the dive team member’s current state of physical fitness, and indicate to the dive team member the procedure for reporting physical problems or adverse physiological effects during and after the dive.

Inspections and Tests

1910.421(g)—Equipment inspection. The breathing gas supply system including reserve breathing gas supplies, masks, helmets, thermal protection, and bell handling mechanism (when appropriate) shall be inspected prior to each dive. [Reference paragraph (g) for specific information.]

Recordkeeping

1910.421(b)—Emergency aid. A list shall be kept at the dive location of the telephone or call numbers.

1910.421(c)(1)—A first aid kit appropriate for the diving operation and approved by a physician shall be available at the dive location.

1910.421(c)(3)—In addition to any other first aid supplies, an American Red Cross standard first aid handbook or equivalent, and a bag-type manual resuscitator with transparent mask and tubing shall be available at the dive location.

Training and Communications

1910.421(f)(1)—Dive team members shall be briefed. [Reference paragraph (f) for specific information.]

Qualified Person

1910.421(c)(1)—A first aid kit appropriate for the diving operation and approved by a physician shall be available at the dive location.

Signs, Markings and Tags

1910.421(h)—Warning signal. When diving from surfaces other than vessels in areas capable of supporting marine traffic, a rigid replica of the international code flag “A” at least one meter in height shall be displayed at the dive location in a manner which allows all-round visibility, and shall be illuminated during night diving operations.

1926.1083—POST-DIVE PROCEDURES

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at §1910.423 [Post-Dive Procedures] of this chapter.

1910.423—POST-DIVE PROCEDURES

Scope/Application: This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.

Exception: This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 (Protection of Human Subjects,
U.S. Department of Health and Human Services) or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—investigate each incident, written evaluations
• Recordkeeping—records
• Training and Communications—employee instructions

Programs, Policies and Procedures

1910.423(e)(1)—Investigate and evaluate each incident of decompression sickness based on the recorded information, consideration of the past performance of decompression table used, and individual susceptibility. [Reference paragraph (e) for specific information.]

1910.423(e)(3)—Prepare a written evaluation of the decompression procedure assessment, including any corrective action taken, within 45 days of the incident of decompression sickness. [Reference paragraph (e) for specific information.]

Recordkeeping

1910.423(d)(1)—Information shall be recorded and maintained for each diving operation. [Reference paragraph (d) for specific information.]

1910.423(d)(2)—For each dive outside the no-decompression limits, deeper than 100 fsw or using mixed gas, additional information shall be recorded and maintained. [Reference paragraph (d) for additional information.]

1910.423(d)(3)—For each dive in which decompression sickness is suspected or symptoms are evident, additional information shall be recorded and maintained. [Reference paragraph (d) for specific information.]

1910.423(e)(1)—Investigate and evaluate each incident of decompression sickness based on the recorded information, consideration of the past performance of decompression table used, and individual susceptibility. [Reference paragraph (e) for specific information.]

1910.423(e)(3)—Prepare a written evaluation of the decompression procedure assessment, including any corrective action taken, within 45 days of the incident of decompression sickness. [Reference paragraph (e) for specific information.]

Training and Communications

1910.423(b)(1)(ii)—Instruct the diver to report any physical problems or adverse physiological effects including symptoms of decompression sickness.

1910.423(b)(1)(iii)—Advise the diver of the location of a decompression chamber which is ready for use.

1910.423(b)(2)—For any dive outside the no-decompression limits, deeper than 100 fsw or using mixed gas as a breathing mixture, the employer shall instruct the diver to remain awake and in the vicinity of the decompression chamber which is at the dive location for at least one hour after the dive (including decompression or treatment as appropriate).
1926.1090—EQUIPMENT

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at 1910.430 [Equipment] of this chapter.

1910.430—EQUIPMENT

Scope/Application: This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.

Exception: This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 (Protection of Human Subjects, U.S. Department of Health and Human Services) or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—tagging/logging system
- Inspections and Tests—regular inspections, testing every 6 months and annually
- Recordkeeping—tagging/logging system, records

Programs, Policies and Procedures

1910.430(a)(2)—Each equipment modification, repair, test, calibration or maintenance service shall be recorded by means of a tagging or logging system, and include the date and nature of work performed, and the name or initials of the person performing the work.

Inspections and Tests

1910.430(b)(4)—The output of air compressor systems shall be tested for air purity every 6 months by means of samples taken at the connection to the distribution system, except that non-oil lubricated compressors need not be tested for oil mist.

1910.430(c)(1)(iii)—Be tested at least annually to 1.5 times their working pressure.

1910.430(f)(3)(ii)—Mufflers on intake and exhaust lines, which shall be regularly inspected and maintained.

1910.430(g)(2)—Each depth gauge shall be deadweight tested or calibrated against a master reference gauge every 6 months, and when there is a discrepancy greater than two percent (2 percent) of full scale between any two equivalent gauges.

Recordkeeping

1910.430(a)(2)—Each equipment modification, repair, test, calibration or maintenance service shall be recorded by means of a tagging or logging system, and include the date and nature of work performed, and the name or initials of the person performing the work.

29 CFR 1926.1091—RECORDKEEPING REQUIREMENTS

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.440 [Recordkeeping Requirements] of this chapter.

1910.440—RECORDKEEPING REQUIREMENTS

Scope/Application: This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.
**Exception:** This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 (Protection of Human Subjects, U.S. Department of Health and Human Services) or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.

**STANDARD HIGHLIGHTS**
- Programs, Policies and Procedures—procedures
- Inspections and Tests—inspections, tests
- Recordkeeping—retention requirements

**Programs, Policies and Procedures**


1910.440(b)(3)(iii)—*Depth-time profile* (1910.422)—until completion of the *recording of dive*, or until completion of *decompression procedure assessment* where there has been an incident of decompression sickness.

**Inspections and Tests**

1910.440(b)(3)(vi)—*Equipment inspections and testing records* (1910.430)—*current entry or tag*, or until equipment is withdrawn from service.

**Recordkeeping**

1910.440(a)(2)—The employer shall *record* the occurrence of any diving-related injury or illness which requires any dive team member to be hospitalized for 24 hours or more, specifying the circumstances of the incident and the extent of any injuries or illnesses.

1910.440(b)(1)—Upon the request of the Assistant Secretary of Labor for Occupational Safety and Health, or the Director, National Institute for Occupational Safety and Health, Department of Health and Human Services of their designees, the employer shall make *available for inspection and copying any record or document* required by this standard.

1910.440(b)(2)—*Records and documents* required by this standard shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020 (a)-(e) and (g)-(i) [Access to Medical Records]. *Safe practices manuals* (1910.420), *depth-time profiles* (1910.422), *recordings of dives* (1910.423), *decompression procedure assessment evaluations* (1910.423), and *records of hospitalizations* (1910.440) shall be provided in the same manner as *employee exposure records* or analyses using *exposure or medical records*. *Equipment inspections and testing records* which pertain to employees (1910.430) shall also be provided upon request to employees and their designated representatives.

1910.440(b)(3)—*Records and documents* required by this standard shall be *retained* by the employer for the following period:


1910.440(b)(3)(iii)—*Depth-time profile* (1910.422)—until completion of the *recording of dive*, or until completion of *decompression procedure assessment* where there has been an incident of decompression sickness.

1910.440(b)(3)(iv)—*Recording of dive* (1910.423)—1 year; except 5 years where there has been an incident of decompression sickness.

1910.440(b)(3)(vi)—*Equipment inspections and testing records* (1910.430)—current entry or tag, or until equipment is withdrawn from service.

29 CFR Subpart Z—Toxic and Hazardous Substances

1926.1101—ASBESTOS

Scope/Application: This section regulates asbestos exposure in all work as defined in 29 CFR 1910.12(b) [Construction Work—Definition], including but not limited to the following: demolition or salvage of structures where asbestos is present; removal or encapsulation of materials containing asbestos; construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos; installation of products containing asbestos; asbestos spill/emergency cleanup; and transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed. Coverage under this standard shall be based on the nature of the work operation involving asbestos exposure.

Exception: This section does not apply to asbestos-containing asphalt roof coatings, cements and mastics.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—work controls, respirator program, medical surveillance program
- Inspections and Tests—inspections before work and beginning of each shift, tests
- Recordkeeping—retention requirements, records
- Certification—written certifications
- Training and Communications—multi-employer worksites, awareness training, written opinions
- Exposure Monitoring—initial, periodic, and daily monitoring, posted results
- Medical Surveillance—program, initial and annual inspections
- Competent Person—duties, exposure assessment, inspections
- Qualified Person—certified industrial hygienist, licensed professional engineer
- Signs, Markings and Tags—posted signs, regulated areas

Programs, Policies and Procedures

1926.1101(g)(1)—Engineering controls and work practices for all operations covered by this section. The employer shall use engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure. [Reference paragraph (g)(1) for specific information.]

1926.1101(g)(4)—Class I Requirements. In addition to the provisions of paragraphs (g)(1) and (2) [Methods of Compliance] of this section, engineering controls and work practices and procedures shall be used. [Reference paragraph (g)(4) and (g)(5) for specific information.]

1926.1101(g)(6)(ii)—A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) [Definitions] of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA’s Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(ii)(B) [Class I Requirements] of this section.

1926.1101(g)(8)(vi)(B)—A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

1926.1101(g)(9)—Work Practices and Engineering Controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.
1926.1101(h)(2)(i)—The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m) [Respiratory Protection], which covers each employee required by this section to use a respirator.

1926.1101(k)(9)(v)—Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include “hands-on” training and shall take at least 16 hours. Exception: For Class III operations for which the competent person determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in paragraph (k)(9)(viii) [Employee Information and Training] of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) [Methods of Compliance] of this section which specifically relate to that activity, and shall include “hands-on” training in the work practices applicable to each category of material that the employee disturbs.

1926.1101(k)(9)(viii)—The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraphs (k)(9)(iii) through (vi) [Employee Information and Training] of this section, the employer shall ensure that each such employee is informed of additional information. [Reference paragraph (k)(9)(viii) for specific information.]

1926.1101(k)(10)(iii)—The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J [Smoking Cessation Program Information for Asbestos] to this section.

1926.1101(m)(1)(i)(A)—The employer shall institute a medical surveillance program for all employees who for a combined total of 30 or more days per year are engaged in Class I, II and III work or are exposed at or above a permissible exposure limit. For purposes of this paragraph, any day in which a worker engages in Class II or Class III operations or a combination thereof on intact material for one hour or less (taking into account the entire time spent on the removal operation, including cleanup) and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

1926.1101(o)(2)—Required inspections by the competent person. Section 1926.20(b)(2) [General Safety and Health Provisions for Construction] which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

1926.1101(o)(4)(i)—For Class I and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors that meets the criteria of EPA’s Model Accredited Plan (40 CFR part 763, subpart E, Appendix C), such as a course conducted by an EPA-approved or state-approved training provider, certified by EPA or a state, or a course equivalent in stringency, content, and length.

1926.1101(o)(4)(ii)—For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of paragraph (o)(4)(i) [Competent Person] of this section.

Inspections and Tests

1926.1101(g)(5)(i)(B)(1)—Before beginning work within the enclosure and at the beginning of each shift, the NPE [negative pressure enclosure] shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

1926.1101(g)(11)(i)—Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the
authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

1926.1101(i)(4)(i)—The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

1926.1101(k)(5)(ii)—An employer or owner may demonstrate that PACM does not contain more than 1 percent asbestos by the following:

1926.1101(k)(5)(ii)(A)—Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, subpart E) which demonstrates that the material is not ACM; or

1926.1101(k)(5)(ii)(B)—Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

1926.1101(o)(2)—Required inspections by the competent person. Section 1926.20(b)(2) [General Safety and Health Provisions for Construction] which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

1926.1101(o)(3)—Additional inspections. In addition, the competent person shall make frequent and regular inspections of the job sites, in order to perform the duties set out below in paragraph (o)(3)(i) and (ii) [Additional Inspections] of this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II, III, and IV jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

Recordkeeping

1926.1101(f)(2)(ii)—Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) [Exposure Assessments and Monitoring] of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to paragraph (f)(1)(iii) [Exposure Assessments and Monitoring] of this section. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) [Exposure Assessments and Monitoring] of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

1926.1101(f)(2)(iii)—Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to specific criteria. [Reference paragraph (f)(2)(iii) for specific information.]

1926.1101(f)(5)—Employee notification of monitoring results. The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1926.1101(g)(6)(ii)—A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) [Definitions] of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos
contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA’s Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(ii) (B) [Class I Requirements] of this section.

1926.1101(g)(8)(vi)(B)—A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

1926.1101(k)(2)(ii)—Building and/or facility owners shall notify the following persons of the presence, location and quantity of ACM [asbestos-containing material] or PACM, at the work sites in their buildings and facilities. Notification either shall be in writing, or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

1926.1101(k)(10)(i)—The employer shall make readily available to affected employees without cost, written materials relating to the employee training program, including a copy of this regulation.

1926.1101(k)(10)(ii)—The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

1926.1101(m)(3)—Information provided to the physician. The employer shall provide specific information to the examining physician. [Reference paragraph (m)(3) for specific information.]

1926.1101(m)(4)(i)—The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination. [Reference paragraph (m)(4)(i) for specific information.]

1926.1101(m)(4)(ii)—The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

1926.1101(m)(4)(iii)—The employer shall provide a copy of the physician’s written opinion to the affected employee within 30 days from its receipt.

1926.1101(n)(1)(i)—Where the employer has relied on objective data that demonstrates that products made from or containing asbestos or the activity involving such products or material are not capable of releasing fibers of asbestos in concentrations at or above the permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling to satisfy the requirements of paragraph (f) [Exposure Assessments and Monitoring], the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

1926.1101(n)(1)(ii)—The record shall include specific information. [Reference paragraph (n)(4)(ii) for specific information.]

1926.1101(n)(1)(iii)—The employer shall maintain this record for the duration of the employer’s reliance upon such objective data.

1926.1101(n)(2)(i)—The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (f) [Exposure Assessments and Monitoring] of this section. Note: The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section. [Reference paragraph (n)(2)(ii) for specific information.]

1926.1101(n)(2)(iii)—The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1926.1101(n)(3)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical
surveillance by paragraph (m) of this section, in accordance with 29 CFR 1910.1020—Access to Employee Exposure and Medical Records. [Reference paragraph (n)(3)(ii) for specific information.]

1926.1101(n)(3)(iii)—The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1926.1101(n)(4)—Training records. The employer shall maintain all employee training records for one (1) year beyond the last date of employment by that employer.

1926.1101(n)(5)—Data to Rebut PACM. Where the building owner and employer have relied on data to demonstrate that PACM is not asbestos-containing, such data shall be maintained for as long as they are relied upon to rebut the presumption.

1926.1101(n)(6)—Records of required notifications. Where the building owner has communicated and received information concerning the identification, location and quantity of ACM and PACM, written records of such notifications and their content shall be maintained by the building owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities.

Certification

1926.1101(g)(6)(ii)—A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) [Definitions] of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g) (4)(ii)(B) [Class I Requirements] of this section.

1926.1101(g)(8)(vi)(B)—A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

Training and Communications

1926.1101(d)(1)—On multi-employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer’s work with asbestos and/or PACM [presumed asbestos containing material], of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

1926.1101(f)(5)—Employee notification of monitoring results. The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1926.1101(g)(8)(vi)(B)—A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

1926.1101(g)(10)—Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in paragraph (k)(9) [Employee Information and Training] of this section. In
addition, all Class IV jobs shall be conducted in conformity with the requirements set out in paragraph (g)(1) [Methods of Compliance] of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

1926.1101(g)(11)(ii)—All employees performing work covered by this paragraph (g)(11) [Alternative Methods of Compliance for Installation, Removal, Repair, and Maintenance of Certain Roofing and Pipeline Coating Materials] shall be trained in a training program that meets the requirements of paragraph (k)(9)(viii) [Employee Information and Training] of this section.

1926.1101(k)(2)(ii)—Building and/or facility owners shall notify the following persons of the presence, location and quantity of ACM [asbestos-containing material] or PACM, at the work sites in their buildings and facilities. Notification either shall be in writing, or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

1926.1101(k)(3)(ii)—Before work under this standard is performed employers of employees who will perform such work shall inform the following persons of the location and quantity of ACM and/or PACM present in the area and the precautions to be taken to insure that airborne asbestos is confined to the area.

1926.1101(k)(3)(iii)—Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.

1926.1101(k)(4)—In addition to the above requirements, all employers who discover ACM and/or PACM on a worksite shall convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

1926.1101(k)(6)—At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

1926.1101(k)(7)(iii)—The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (k)(7)(i) [Signs] of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

1926.1101(k)(8)(vii)—When a building owner or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (k)(6) [Communication of Hazards] of this section may be posted in lieu of labels so long as they contain information required for labeling. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs or labels can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

1926.1101(k)(9)(i)—The employer shall train each employee who is likely to be exposed in excess of a PEL, and each employee who performs Class I through IV asbestos operations, in accordance with the requirements of this section. Such training shall be conducted at no cost to the employee. The employer shall institute a training program and ensure employee participation in the program. [Reference paragraph (k)(9)(iv) for specific information.]

1926.1101(k)(9)(ii)—Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

1926.1101(k)(9)(v)—Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include “hands-on” training and shall take at least 16 hours. Exception: For Class III operations for which the competent person
determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in paragraph (k)(9)(viii) [Employee Information and Training] of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) [Methods of Compliance] of this section which specifically relate to that activity, and shall include “hands-on” training in the work practices applicable to each category of material that the employee disturbs.

1926.1101(k)(9)(viii)—The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraphs (k)(9)(iii) through (vi) [Employee Information and Training] of this section, the employer shall ensure that each such employee is informed of additional information. [Reference paragraph (k)(9)(viii) for specific information.]

1926.1101(k)(10)(iii)—The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No, 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J [Smoking Cessation Program Information for Asbestos] to this section.

1926.1101(m)(1)(ii)(B)—Persons other than such licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

1926.1101(m)(3)—Information provided to the physician. The employer shall provide specific information to the examining physician. [Reference paragraph (m)(3) for specific information.]

1926.1101(m)(4)(i)—The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination. [Reference paragraph (m)(4)(i) for specific information.]

1926.1101(m)(4)(ii)—The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

1926.1101(m)(4)(iii)—The employer shall provide a copy of the physician’s written opinion to the affected employee within 30 days from its receipt.

1926.1101(o)(4)(i)—For Class I and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors that meets the criteria of EPA’s Model Accredited Plan (40 CFR part 763, subpart E, Appendix C), such as a course conducted by an EPA-approved or state-approved training provider, certified by EPA or a state, or a course equivalent in stringency, content, and length.

1926.1101(o)(4)(ii)—For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of paragraph (o)(4)(i) [Competent Person] of this section.

Exposure Monitoring

1926.1101(f)(1)(i)—Each employer who has a workplace or work operation where exposure monitoring is required under this section shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.

1926.1101(f)(2)(i)—Each employer who has a workplace or work operation covered by this standard shall ensure that a “competent person” conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with
requirements which are triggered by exposure 

data or the lack of a “negative exposure assessment,” and to provide 

information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

1926.1101(f)(2)(ii)—Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) [Exposure Assessments and Monitoring] of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to paragraph (f)(1)(iii) [Exposure Assessments and Monitoring] of this section. The assessment shall take into consideration both, the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) [Exposure Assessments and Monitoring] of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

1926.1101(f)(2)(iii)—Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to specific criteria. [Reference paragraph (f)(2)(iii) for specific information.]

1926.1101(f)(3)(i)—Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to (f)(2)(iii) [Exposure Assessments and Monitoring] of this section, has made a negative exposure assessment for the entire operation.

1926.1101(f)(3)(ii)—All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

1926.1101(f)(4)(ii)—Additional monitoring. Notwithstanding the provisions of paragraph (f)(2) [Initial Exposure Assessment] and (3) [Periodic Monitoring], and (f)(4) [Termination of Monitoring] of this section, the employer shall institute the exposure monitoring required under paragraph (f)(3) [Periodic Monitoring] of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a “negative exposure assessment” was previously produced for a specific job.

1926.1101(f)(5)—Employee notification of monitoring results. The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Medical Surveillance

1926.1101(m)(1)(i)(A)—The employer shall institute a medical surveillance program for all employees who for a combined total of 30 or more days per year are engaged in Class I, II and III work or are exposed at or above a permissible exposure limit. For purposes of this paragraph, any day in which a worker engages in Class II or Class III operations or a combination thereof on intact material for one hour or less (taking into account the entire time spent on the removal operation, including cleanup) and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

1926.1101(m)(2)(i)—Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (m)(1)(i) [Medical Surveillance] of this section on the following schedules:

1926.1101(m)(2)(i)(A)—Prior to assignment of the employee to an area where negative-pressure respirators are worn.

1926.1101(m)(2)(i)(B)—When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II, or III work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure.
1926.1101(m)(2)(i)(C)—And at least annually thereafter.

1926.1101(m)(2)(i)(D)—If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies specified by the physician. [Reference paragraph (m)(2)(ii) for specific information.]

1926.1101(m)(2)(ii)(D)—Any other examinations or tests deemed necessary by the examining physician.

1926.1101(m)(3)—Information provided to the physician. The employer shall provide specific information to the examining physician. [Reference paragraph (m)(3) for specific information.]

1926.1101(m)(4)(i)—The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination. [Reference paragraph (m)(4)(i) for specific information.]

1926.1101(m)(4)(iii)—The employer shall provide a copy of the physician’s written opinion to the affected employee within 30 days from its receipt.

Competent Person

1926.1101(e)(6)—Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in paragraph (b) [Definitions] of this section. The duties of the competent person are set out in paragraph (o) [Competent Person] of this section.

1926.1101(f)(2)(i)—Each employer who has a workplace or work operation covered by this standard shall ensure that a “competent person” conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a “negative exposure assessment,” and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

1926.1101(g)(4)(i)—All Class I work, including the installation and operation of the control system shall be supervised by a competent person as defined in paragraph (b) [Definitions] of this section.

1926.1101(g)(6)(ii)(A)—Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in paragraph (g)(6) [Alternative Control Methods for Class I Work] of this section may be performed by a “competent person”, and may omit consideration of perimeter or clearance monitoring otherwise required.

1926.1101(g)(7)(i)—All Class II work shall be supervised by a competent person as defined in paragraph (b) [Definitions] of this section.

1926.1101(g)(8)(ii)(C)—Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

1926.1101(g)(8)(vi)(B)—A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

1926.1101(g)(11)(i)—Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.
The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

General. On all construction worksites covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32).

Section 1926.20(b)(2) [General Safety and Health Provisions for Construction] which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

Additional Inspections. In addition, the competent person shall make frequent and regular inspections of the job sites, in order to perform the duties set out below in paragraph (o)(3)(i) and (ii) [Additional Inspections] of this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II, III, and IV jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

On all worksites where employees are engaged in Class I or II asbestos work, the competent person designated in accordance with paragraph (e)(6) [Competent Persons] of this section shall perform or supervise specific duties, as applicable: [Reference paragraph (o)(3)(i) for specific information.]

For Class I and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors that meets the criteria of EPA's Model Accredited Plan (40 CFR part 763, subpart E, Appendix C), such as a course conducted by an EPA-approved or state-approved training provider, certified by EPA or a state, or a course equivalent in stringency, content, and length.

For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of paragraph (o)(4)(i) [Competent Person] of this section.

Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Act or regulations issued pursuant thereto.

A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) [Definitions] of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g) (4)(ii)(B) [Class I Requirements] of this section.

An employer or owner may demonstrate that PACM does not contain more than 1 percent asbestos by the following:

Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH.
Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

1926.1101(k)(5)(iii)—The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

1926.1101(m)(3)—Information provided to the physician. The employer shall provide specific information to the examining physician. [Reference paragraph (m)(3) for specific information.]

1926.1101(m)(4)(i)—The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination. [Reference paragraph (m)(4)(i) for specific information.]

1926.1101(m)(4)(ii)—The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

1926.1101(m)(4)(iii)—The employer shall provide a copy of the physician’s written opinion to the affected employee within 30 days from its receipt.

Signs, Markings and Tags

1926.1101(e)(2)—Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of paragraph (k)(7) [Signs] of this section.

1926.1101(k)(6)—At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

1926.1101(k)(7)(i)—Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required to be established by paragraph (e) [Regulated Areas] of this section. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. [Reference paragraph (k)(7)(ii) for specific information.]

1926.1101(k)(7)(iii)—The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (k)(7)(i) [Signs] of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

1926.1101(k)(8)(vii)—When a building owner or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (k)(6) [Communication of Hazards] of this section may be posted in lieu of labels so long as they contain information required for labeling. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs or labels can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.
**Scope/Application**: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

**1910.1003—13 CARCINOGENS (4-NITROBIPHENYL, ETC.)**

**Scope/Application**: This section applies to any area in which the 13 carcinogens addressed by this section are manufactured, processed, repackaged, released, handled, or stored, but shall not apply to transshipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section. The 13 carcinogens are the following:

- 4-Nitrobiphenyl
- alpha-Naphthylamine
- methyl chloromethyl ether
- 3,3'-Dichlorobenzidine (and its salts)
- bis-Chloromethyl ether
to
- beta-Naphthylamine
- Benzidine
- 4-Aminodiphenyl
- Ethyleneimine
- beta-Propiolactone
- 2-Acetylaminofluorene
- 4-Dimethylaminoazo-benzene
- N-Nitrosodimethylamine

**Exception**: The standard does not apply to transshipment in sealed containers except the labeling. It does not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of 4-Nitrobiphenyl; methyl chloromethyl ether; bis-chloromethyl ether; beta-Naphthylamine; Benzidine; 4-Aminodiphenyl; Ethyleneimine; beta-Propiolactone; 2-Acetylaminofluorene; 4-Dimethylaminoazo-benzene, or N-Nitrosodimethylamine.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—respirator program, medical surveillance program, emergency procedures
- Recordkeeping—records
- Training and Communications—initial and annual training
- Medical Surveillance—program, initial, annual, and emergency examinations, written opinion
- Qualified Person—authorized person, physician
- Signs, Markings and Tags—posted signs, labels, posted emergency procedures

**Programs, Policies and Procedures**

1910.1003(d)(1)—Respiratory program. The employer must implement a respiratory protection program in accordance with 1910.134 [Respiratory Protection] (b), (c), (d) (except (d)(1)(iii) and (iv), and (d)(3)), and (e) through (m), which covers each employee required by this section to use a respirator.

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in paragraph (e)(1)(iv) of this section in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of the carcinogens listed in paragraph (e)(1)(iv) and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (e)(4) of this section.

1910.1003(e)(2)(v)—Appropriate signs and instructions shall be posted at the entrance to, and exit from, regulated areas, informing employees of the procedures that must be followed in entering and leaving a regulated area.

1910.1003(e)(4)(ii)—Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.

1910.1003(e)(5)(i)—Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program [Reference paragraph (e) for specific information.]

1910.1003(e)(5)(ii)—Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.

1910.1003(g)—Medical surveillance. At no cost to the employee, a program of medical surveillance shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees.
Recordkeeping

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in paragraph (e)(1)(iv) of this section in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of the carcinogens listed in paragraph (e)(1)(iv) and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (e)(4) of this section.

1910.1003(e)(2)(v)—Appropriate signs and instructions shall be posted at the entrance to, and exit from, regulated areas, informing employees of the procedures that must be followed in entering and leaving a regulated area.

1910.1003(e)(4)(ii)—Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.

1910.1003(e)(5)(ii)—Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.

1910.1003(g)(2)(i)—Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be maintained for the duration of the employee’s employment.

1910.1003(g)(2)(ii)—Records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020 (a) through (e) and (g) through (i) [Access to Employee Exposure and Medical Records]. These records shall also be provided upon request to the Director.

1910.1003(g)(2)(iii)—Any physician who conducts a medical examination required by this paragraph shall furnish to the employer a statement of the employee’s suitability for employment in the specific exposure. [Reference paragraph (g) for specific information.]

Training and Communications

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in paragraph (e)(1)(iv) of this section in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of the carcinogens listed in paragraph (e)(1)(iv) and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (e)(4) of this section.

1910.1003(e)(4)(i)—Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to:

1910.1003(e)(4)(i)(A)—The nature of the carcinogenic hazards of a carcinogen addressed by this section, including local and systemic toxicity;

1910.1003(e)(4)(i)(B)—The specific nature of the operation involving a carcinogen addressed by this section that could result in exposure;

1910.1003(e)(4)(i)(C)—The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination;

1910.1003(e)(4)(i)(D)—The purpose for and application of decontamination practices and purposes;

1910.1003(e)(4)(i)(E)—The purpose for and significance of emergency practices and procedures;

1910.1003(e)(4)(i)(F)—The employee’s specific role in emergency procedures;

1910.1003(e)(4)(i)(G)—Specific information to aid the employee in recognition and evaluation of conditions and
situations which may result in the release of a carcinogen addressed by this section;

1910.1003(e)(4)(i)(H)—The purpose for and application of specific first aid procedures and practices;

1910.1003(e)(4)(i)(I)—A review of this section at the employee’s first training and indoctrination program and annually thereafter.

1910.1003(e)(4)(ii)—Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.

1910.1003(g)(2)(ii)—Records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020 (a) through (e) and (g) through (i) [Access to Employee Exposure and Medical Records]. These records shall also be provided upon request to the Director.

1910.1003(g)(2)(iii)—Any physician who conducts a medical examination required by this paragraph shall furnish to the employer a statement of the employee’s suitability for employment in the specific exposure. [Reference paragraph (g) for specific information.]

Medical Surveillance

1910.1003(d)(2)(iii)—Special medical surveillance by a physician shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency.

1910.1003(g)—Medical surveillance. At no cost to the employee, a program of medical surveillance shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees.

1910.1003(g)(1)(i)—Before an employee is assigned to enter a regulated area, a preassignment physical examination by a physician shall be provided. The examination shall include the personal history of the employee, family and occupational background, including genetic and environmental factors.

1910.1003(g)(1)(ii)—Authorized employees shall be provided periodic physical examinations, not less often than annually, following the preassignment examination.

1910.1003(g)(2)(iii)—Any physician who conducts a medical examination required by this paragraph shall furnish to the employer a statement of the employee’s suitability for employment in the specific exposure. [Reference paragraph (g) for specific information.]

Qualified Person

1910.1003(d)(2)(iii)—Special medical surveillance by a physician shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency.

1910.1003(e)(4)(i)—Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to specific requirements. [Reference paragraph (e)(4)(i) for specific information.]

1910.1003(g)(1)(i)—Before an employee is assigned to enter a regulated area, a preassignment physical examination by a physician shall be provided. The examination shall include the personal history of the employee, family and occupational background, including genetic and environmental factors.

Signs, Markings and Tags

1910.1003(e)(2)(i)—The employer shall post entrances to regulated areas with signs bearing the legend.
1910.1003(e)(2)(ii)—The employer shall post signs at entrances to regulated areas containing operations covered in paragraph (c)(5) of this section. The signs shall bear the legend.

1910.1003(e)(2)(v)—Appropriate signs and instructions shall be posted at the entrance to, and exit from, regulated areas, informing employees of the procedures that must be followed in entering and leaving a regulated area.

1926.1104—ALPHA-NAPHTHYLAMINE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at 29 CFR 1910.1003 [13 Carcinogens] of this chapter.

1926.1106—METHYL CHLOROMETHYL ETHER

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1107—3,3'-DICHLOROBENZIDINE (AND ITS SALTS)

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1108—BIS-CHLOROMETHYL ETHER

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1109—BETA-NAPHTHYLAMINE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1110—BENZIDINE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1111—4-AMINODIPHENYL

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1112—ETHYLENEIMINE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1113—BETA-PROPIOLACTONE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1114—2-ACETYLAMINOFLUORENE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.
1926.1115—4-DIMETHYLAMINOAZOBENZENE

Scope/ Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1116—N-NITROSODIMETHYLAMINE

Scope/ Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1003 [13 Carcinogens] of this chapter.

1926.1117—VINYL CHLORIDE

Scope/ Application: The requirements applicable to construction work under this section are identical to those set forth at Sec. 1910.1017 [Vinyl Chloride] of this chapter.

1910.1017—VINYL CHLORIDE

Scope/ Application: This section includes requirements for the control of employee exposure to vinyl chloride (chloroethene).

Exception: This standard does not apply to the handling or use of fabricated products made of polyvinyl chloride.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—exposure monitoring program, respirator program, emergency plan, medical surveillance program, work practice controls, annual updates, hazard communication program

• Recordkeeping—retention requirements, medical records, safety data sheets

• Training and Communications—initially, annually

• Exposure Monitoring—program, monitoring quarterly, measurements, results posted

• Medical Surveillance—program, examinations, written opinions

• Qualified Person—physician, statement

• Signs, Markings and Tags—labels, posting signs

Programs, Policies and Procedures

1910.1017(d)(1)—A program of initial monitoring and measurement shall be undertaken in each establishment to determine if there is any employee exposed, without regard to the use of respirators, in excess of the action level.

1910.1017(d)(2)—Where a determination conducted under paragraph (d)(1) [Monitoring] of this section shows any employee exposures, without regard to the use of respirators, in excess of the action level, a program for determining exposures for each such employee shall be established. Such a program:

1910.1017(d)(2)(i)—Must be repeated at least quarterly for any employee exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

1910.1017(d)(2)(ii)—Must be repeated not less than every 6 months for any employee exposed without regard to the use of respirators, at or above the action level.

1910.1017(f)(2)—Wherever feasible engineering and work practice controls which can be instituted immediately are not sufficient to reduce exposures to at or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest practicable level, and shall be supplemented by respiratory protection in accordance with paragraph (g) [Respiratory Protection] of this section. A program shall be established and implemented to reduce exposures to at or below the permissible exposure limit, or to the greatest extent feasible, solely by means of engineering and work practice controls, as soon as feasible.
1910.1017(f)(3)—Such plans must be updated at least annually.

1910.1017(g)(2)—Respirator program. The employer must implement a respiratory protection program in accordance with 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(i)(iii), and (d)(3)(iii)(B)(1) and (2)), and (f) through (m) which covers each employee required by this section to use a respirator.

1910.1017(i)—Emergency situations. A written operational plan for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the plan shall be implemented in the event of an emergency.

1910.1017(j)—Training. Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use. [Reference paragraph (j) for specific information.]

1910.1017(j)(1)(ix)—A review of this standard at the employee’s first training and indoctrination program, and annually thereafter.

1910.1017(k)—Medical surveillance. A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

1910.1017(k)(7)—If the examining physician determines that alternative medical examinations to those required by paragraph (k)(1) [Medical Surveillance] of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of paragraph (k)(1) [Medical Surveillance] of this section, if the employer obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.

1910.1017(l)(1)(iii)—Employers shall include vinyl chloride in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of vinyl chloride and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (j) of this section.

1910.1017(n)—Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results and the steps being taken to reduce exposures within the permissible exposure limit either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

Recordkeeping

1910.1017(i)—Emergency situations. A written operational plan for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the plan shall be implemented in the event of an emergency.

1910.1017(k)(4)—A statement of each employee’s suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician’s statement shall be provided each employee. [Reference paragraph (k) for specific information.]

1910.1017(k)(7)—If the examining physician determines that alternative medical examinations to those required by paragraph (k)(1) [Medical Surveillance] of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of paragraph (k)(1) [Medical Surveillance] of this section, if the employer obtains a statement from the examining physician setting forth the
alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.

1910.1017(l)(1)(iii)—Employers shall include vinyl chloride in the hazard communication program established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to labels on containers of vinyl chloride and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (j) [Training] of this section.

1910.1017(m)(2)—Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a)-(e) and (g) through (i) [Access to Employee Exposure and Medical Records]. These records shall be provided upon request to the Director. Authorized personnel rosters shall also be provided upon request to the Assistant Secretary and the Director.

1910.1017(m)(2)(i)(C)—Be maintained for not less than 30 years.

1910.1017(m)(2)(iii)—Medical records shall be maintained for the duration of the employment of each employee plus 20 years, or 30 years, whichever is longer.

1910.1017(n)—Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results and the steps being taken to reduce exposures within the permissible exposure limit either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

Training and Communications

1910.1017(j)—Training. Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use. [Reference paragraph (j) for specific information.]

1910.1017(j)(1)(ix)—A review of this standard at the employee’s first training and indoctrination program, and annually thereafter.

1910.1017(k)(4)—A statement of each employee’s suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician’s statement shall be provided each employee. [Reference paragraph (k) for specific information.]

1910.1017(m)(2)—Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a)-(e) and (g) through (i) [Access to Employee Exposure and Medical Records]. These records shall be provided upon request to the Director. Authorized personnel rosters shall also be provided upon request to the Assistant Secretary and the Director.

1910.1017(n)—Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results and the steps being taken to reduce exposures within the permissible exposure limit either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

Exposure Monitoring

1910.1017(d)(1)—A program of initial monitoring and measurement shall be undertaken in each establishment to determine if there is any employee exposed, without regard to the use of respirators, in excess of the action level.

1910.1017(d)(2)—Where a determination conducted under paragraph (d)(1) [Monitoring] of this section shows any employee exposures, without regard to the use of respirators, in excess of the action level, a program for determining exposures for each such employee shall be established. Such a program:
1910.1017(d)(2)(i)—Must be repeated at least quarterly for any employee exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

1910.1017(d)(2)(ii)—Must be repeated not less than every 6 months for any employee exposed without regard to the use of respirators, at or above the action level.

1910.1017(n)—Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results and the steps being taken to reduce exposures within the permissible exposure limit either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

Medical Surveillance

1910.1017(k)—Medical surveillance. A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

1910.1017(k)(2)—Examinations must be provided in accordance with this paragraph at least annually.

1910.1017(k)(2)(i)—Every 6 months for each employee who has been employed in vinyl chloride or polyvinyl chloride manufacturing for 10 years or longer.

1910.1017(k)(2)(ii)—Annually for all other employees.

1910.1017(k)(3)—Each employee exposed to an emergency shall be afforded appropriate medical surveillance.

1910.1017(k)(4)—A statement of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician's statement shall be provided each employee. [Reference paragraph (k) for specific information.]

1910.1017(k)(7)—If the examining physician determines that alternative medical examinations to those required by paragraph (k)(1) [Medical Surveillance] of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of paragraph (k)(1) [Medical Surveillance] of this section, if the employer obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.

Qualified Person

1910.1017(k)—Medical surveillance. A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

1910.1017(k)(4)—A statement of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician's statement shall be provided each employee. [Reference paragraph (k) for specific information.]

1910.1017(k)(7)—If the examining physician determines that alternative medical examinations to those required by paragraph (k)(1) [Medical Surveillance] of this section will provide at least equal assurance of detecting medical
conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of paragraph (k)(1) [Medical Surveillance] of this section, if the employer obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.

Signs, Markings and Tags

1910.1017(l)(1)(iii)—Employers shall include vinyl chloride in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of vinyl chloride and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (j) of this section.

1910.1017(l)(2)(i)—The employer shall post entrances to regulated areas with legible signs bearing a legend.

1910.1017(l)(2)(ii)—The employer shall post signs at areas containing hazardous operations or where emergencies currently exist. The signs shall be legible and bear the legend.

1910.1017(l)(3)(i)—In addition to the other requirements in this paragraph (l) [Hazard Communication], the employer shall ensure that labels for containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride are legible and include specific information. [Reference paragraph (l)(3)(i) for specific information.]

1910.1017(l)(5)—Containers of vinyl chloride shall be legibly labeled.

1926.1118—INORGANIC ARSENIC

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at 29 CFR 1910.1018 [Inorganic Arsenic] of this chapter.

1910.1018—INORGANIC ARSENIC

Scope/Application: This section applies to all occupational exposures to inorganic arsenic except that this section does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

Exception: This standard does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—compliance program, respirator program, training program, housekeeping and maintenance plan, medical surveillance program
• Recordkeeping—retention requirements
• Training and Communications—program, initial and annual training
• Exposure Monitoring—initially, quarterly and 6 month monitoring, written results posted
• Medical Surveillance—initial, examinations, written opinions
• Qualified Person—physician
• Signs, Markings and Tags—posted signs, labels

Programs, Policies and Procedures

1910.1018(g)(1)(i)—The employer shall institute at the earliest possible time but not later than December 31, 1979, engineering and work practice controls to reduce exposures to or below the permissible exposure limit, except to the extent that the employer can establish that such controls are not feasible.

1910.1018(g)(2)(i)—The employer shall establish and implement a written program to reduce exposures to or below the permissible exposure limit by means of engineering and work practice controls.
1910.1018(h)(2)(i)—The employer must implement a respiratory protection program in accordance with 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1018(k)(4)—A written housekeeping and maintenance plan shall be kept which shall list appropriate frequencies for carrying out housekeeping operations, and for cleaning and maintaining dust collection equipment. The plan shall be available for inspection by the Assistant Secretary.

1910.1018(k)(5)—Maintenance of equipment. Periodic cleaning of dust collection and ventilation equipment and checks of their effectiveness shall be carried out to maintain the effectiveness of the system and a notation kept of the last check of effectiveness and cleaning or maintenance.

1910.1018(n)(1)(i)—Employees covered. The employer shall institute a medical surveillance program.

1910.1018(o)(1)(ii)—The training program shall be provided by October 1, 1978, for employees covered by this provision, at the time of initial assignment for those subsequently covered by this provision, and at least annually for other covered employees thereafter.

Recordkeeping

1910.1018(e)(5)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

1910.1018(e)(5)(ii)—Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

1910.1018(g)(2)(i)—The employer shall establish and implement a written program to reduce exposures to or below the permissible exposure limit by means of engineering and work practice controls.

1910.1018(k)(4)—A written housekeeping and maintenance plan shall be kept which shall list appropriate frequencies for carrying out housekeeping operations, and for cleaning and maintaining dust collection equipment. The plan shall be available for inspection by the Assistant Secretary.

1910.1018(n)(5)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (n)(5) for specific information.]

1910.1018(n)(6)(i)—The employer shall obtain a written opinion from the examining physician. [Reference paragraph (n)(6) for specific information.]

1910.1018(n)(6)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

1910.1018(q)(1)(i)—The employer shall establish and maintain an accurate record of all monitoring required by paragraph (e) [Exposure Monitoring] of this section.

1910.1018(q)(1)(iii)—The employer shall maintain these monitoring records for at least 40 years or for the duration of employment plus 20 years, whichever is longer.

1910.1018(q)(2)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (n) [Medical Surveillance] of this section.

1910.1018(q)(2)(iv)—The employer shall maintain or assure that the physician maintains those medical records for at least 40 years, or for the duration of employment plus 20 years whichever is longer.
1910.1018(q)(3)(i)—The employer shall make available upon request all records required to be maintained by paragraph (q) [Recordkeeping] of this section to the Assistant Secretary and the Director for examination and copying.

1910.1018(q)(3)(ii)—Records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a)-(e) and (g)-(i) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1018(e)(5)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

1910.1018(e)(5)(ii)—Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

Exposure Monitoring

1910.1018(e)(2)—Initial monitoring. Each employer who has a workplace or work operation covered by this standard shall monitor each such workplace and work operation to accurately determine the airborne concentration of inorganic arsenic to which employees may be exposed.

1910.1018(e)(3)(ii)—If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the permissible exposure limit, the employer shall repeat monitoring at least quarterly.
1910.1018(e)(3)(iii)—If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the action level and below the permissible exposure limit the employer shall repeat monitoring at least every six months.

1910.1018(e)(3)(iv)—The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven (7) days apart, are below the action level at which time the employer may discontinue monitoring for that employee until such time as any of the events in paragraph (e)(4) [Additional Monitoring] of this section occur.

1910.1018(e)(4)—Additional monitoring. Whenever there has been a production, process, control or personal change which may result in new or additional exposure to inorganic arsenic, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to inorganic arsenic, additional monitoring which complies with paragraph (e) [Exposure Monitoring] of this section shall be conducted.

1910.1018(e)(5)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

1910.1018(e)(5)(ii)—Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

Medical Surveillance

1910.1018(n)(1)(i)—Employees covered. The employer shall institute a medical surveillance program.

1910.1018(n)(2)—Initial examinations. By December 1, 1978, for employees initially covered by the medical provisions of this section, or thereafter at the time of initial assignment to an area where the employee is likely to be exposed over the action level at least 30 days per year, the employer shall provide each affected employee an opportunity for a medical examination.

1910.1018(n)(3)(i)—Examinations must be provided in accordance with this paragraph at least annually.

1910.1018(n)(3)(ii)—Whenever a covered employee has not taken the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii) [Initial Examinations] of this section within six (6) months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.

1910.1018(n)(5)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (n)(5) for specific information.]

1910.1018(n)(6)(i)—The employer shall obtain a written opinion from the examining physician. [Reference paragraph (n)(6) for specific information.]

1910.1018(n)(6)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

1910.1018(q)(2)(iv)—The employer shall maintain or assure that the physician maintains those medical records for at least 40 years, or for the duration of employment plus 20 years whichever is longer.

Qualified Person

1910.1018(n)(5)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (n)(5) for specific information.]

1910.1018(n)(6)(i)—The employer shall obtain a written opinion from the examining physician. [Reference paragraph (n)(6) for specific information.]
1910.1018(q)(2)(iv)—The employer shall maintain or assure that the physician maintains those medical records for at least 40 years, or for the duration of employment plus 20 years whichever is longer.

Signs, Markings and Tags

1910.1018(p)(2)(i)—The employer shall post signs demarcating regulated areas bearing the legend. [Reference paragraph (p)(2) for specific information.]

1926.1126—CHROMIUM (VI)

Scope/Application: This standard applies to occupational exposures to chromium (VI) in all forms and compounds in construction.

Exception: Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives); exposures to portland cement; or where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 μg/m³ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—work controls, respirator program
- Recordkeeping—retention requirements
- Training and Communications—employee training, inform launderer
- Exposure Monitoring—initial, 3 months, and 6 months monitoring, written results, posted
- Medical Surveillance—initial and annual examinations, emergency and termination examinations
- Qualified Person—physician
- Signs, Markings and Tags—labels

Programs, Policies and Procedures

1926.1126(e)(1)(i)—Except as permitted in paragraph (e)(1)(ii) [Engineering and Work Practice Controls] of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) [Respiratory Protection] of this section.

1926.1126(f)(2)—Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 [Respiratory Protection], which covers each employee required to use a respirator.

Recordkeeping

1926.1126(i)(2)(iii)—Within 30 days after a PLHCP’s written medical opinion recommends an additional examination.

1926.1126(i)(4)—Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide specific information. [Reference paragraph (i)(4) for specific information.]

1926.1126(i)(5)(i)—The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains specific information. [Reference paragraph (i)(5) for specific information.]

1926.1126(k)(1)(i)—The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.
1926.1126(k)(1)(ii)—This air monitoring record shall include specific information. [Reference paragraph (k)(1)(ii) for specific information.]

1926.1126(k)(1)(iii)—The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1926.1126(k)(2)(i)—Historical monitoring data. Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintained an accurate record of the historical monitoring data relied upon.

1926.1126(k)(2)(ii)—The historical monitoring record shall include information that reflects specific conditions. [Reference paragraph (k)(2)(ii) for specific information.]

1926.1126(k)(2)(iii)—The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1926.1126(k)(3)(i)—Objective data. The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

1926.1126(k)(3)(ii)—This objective data record shall include at least specific information. [Reference paragraph (k)(3)(ii) for specific information.]

1926.1126(k)(3)(iii)—The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1926.1126(k)(4)(i)—The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (i) [Medical Surveillance] of this section. [Reference paragraph (k)(4)(ii) for specific information.]

1926.1126(k)(4)(iii)—The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

Training and Communications

1926.1126(d)(4)(i)—Within 5 work days after making an exposure determination in accordance with paragraph (d)(2) [Scheduled Monitoring Option] or paragraph (d)(3) [Performance-Oriented Option] of this section, the employer shall individually notify each affected employee in writing of the results of that determination or post the results in an appropriate location accessible to all affected employees.

1926.1126(d)(4)(ii)—Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

1926.1126(g)(3)(iii)—The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

1926.1126(j)(2)—Employee information and training. The employer shall ensure that each employee can demonstrate knowledge of information. [Reference paragraph (j)(2)(i) for specific information.]

Exposure Monitoring

1926.1126(d)(1)—General. Each employer who has a workplace or work operation covered by this section shall determine the
8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either paragraph (d)(2) [Scheduled Monitoring Option] or paragraph (d)(3) [Performance-Oriented Option] of this section.

1926.1126(d)(2)(i)—Scheduled monitoring option. The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

1926.1126(d)(2)(iii)—If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

1926.1126(d)(2)(iv)—If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

1926.1126(d)(3)—Performance-oriented option. The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

1926.1126(d)(4)(i)—Within 5 work days after making an exposure determination in accordance with paragraph (d)(2) [Scheduled Monitoring Option] or paragraph (d)(3) [Performance-Oriented Option] of this section, the employer shall individually notify each affected employee in writing of the results of that determination or post the results in an appropriate location accessible to all affected employees.

1926.1126(d)(4)(ii)—Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Medical Surveillance

1926.1126(i)(1)(i)—The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees. [Reference paragraph (i)(1)(i) and (i)(3) for specific information.]

1926.1126(i)(2)—Frequency. The employer shall provide a medical examination:

1926.1126(i)(2)(i)—Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months.

1926.1126(i)(2)(ii)—Annually.

1926.1126(i)(2)(iii)—Within 30 days after a PLHCP's written medical opinion recommends an additional examination.

1926.1126(i)(2)(iv)—Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure.

1926.1126(i)(2)(v)—Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI).

1926.1126(i)(2)(vi)—At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i) of this section was less than six months prior to the date of termination.

1926.1126(i)(3)(iii)—Any additional tests deemed appropriate by the examining PLHCP.

1926.1126(i)(4)—Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide specific information. [Reference paragraph (i)(4) for specific information.]
1926.1126(i)(5)(i)—The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains specific information. [Reference paragraph (i)(5) for specific information.]

Signs, Markings and Tags

1926.1126(g)(2)(iv)—Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication Standard, Sec. 1910.1200.

1926.1127—CADMIUM

Scope/Application: This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, in all construction work where an employee may potentially be exposed to cadmium. Construction work is defined as work involving construction, alteration and/or repair, including but not limited to the following: wrecking, demolition or salvage of structures where cadmium or materials containing cadmium are present; use of cadmium containing-paints and cutting, brazing, burning, grinding or welding on surfaces that were painted with cadmium containing paints; construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain cadmium, or materials containing cadmium; cadmium welding; cutting and welding cadmiumplated steel; brazing or welding with cadmium alloys; installation of products containing cadmium; electrical grounding with cadmium welding, or electrical work using cadmium-coated conduit; maintaining or retrofitting cadmium-coated equipment; cadmium contamination/emergency cleanup; and transportation, disposal, storage, or containment of cadmium or materials containing cadmium on the site or location at which construction activities are performed.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—work controls, compliance program, respirator program, emergency action plan
• Inspections and Tests—material testing
• Recordkeeping—retention requirements
• Training and Communications—hazard communication, records, initial training
• Exposure Monitoring—determination, initial and periodic monitoring, written results, posting
• Medical Surveillance—program, respirator use, initial and annual examinations
• Qualified Person—authorized person
• Competent Person—review program
• Signs, Markings and Tags—labels, posting signs, regulated areas

Programs, Policies and Procedures

1926.1127(f)(1)(i)—Except as specified in paragraph (f)(1)(ii) [Methods of Compliance] of this section, the employer shall implement engineering and work practice controls to reduce and maintain employee exposure to cadmium at or below the PEL, except to the extent that the employer can demonstrate that such controls are not feasible.

1926.1127(f)(4)(iv)—Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters is being conducted.

1926.1127(f)(5)(i)—Where employee exposure to cadmium exceeds the PEL and the employer is required under paragraph (f)(1) [Methods of Compliance] of this section to implement controls to comply with the PEL, prior to the commencement of the job the employer shall establish and implement a written compliance program to reduce employee exposure to or below the PEL. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, the employer shall include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

1926.1127(f)(5)(ii)—Written compliance programs shall be reviewed and updated as often and as promptly as necessary to reflect significant changes in the employer’s compliance status or significant changes in the lowest air cadmium level that is technologically feasible.
1926.1127(f)(5)(iii)—A competent person shall review the comprehensive compliance program initially and after each change.

1926.1127(g)(2)(i)—The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m) [Respiratory Protection], which covers each employee required by this section to use a respirator.

1926.1127(h)—Emergency situations. The employer shall develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan shall include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation shall be restricted from the area and normal operations halted in that area until the emergency is abated.

1926.1127(l)(1)(i)(A)—Currently exposed—The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level and all employees who perform the following tasks, operations or jobs: Electrical grounding with cadmium welding; cutting, brazing, burning, grinding or welding on surfaces that were painted with cadmium-containing paints; electrical work using cadmium-coated conduit; use of cadmium containing paints; cutting and welding cadmium-plated steel; brazing or welding with cadmium alloys; fusing of reinforced steel by cadmium welding; maintaining or retrofitting cadmium-coated equipment; and, wrecking and demolition where cadmium is present.

1926.1127(l)(5)(i)(A)—Periodically reassess: The employee’s work practices and personal hygiene; the employee’s respirator use, if any; the employee’s smoking history and status; the respiratory protection program; the hygiene facilities; the maintenance and effectiveness of the relevant engineering controls; and take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee’s excess exposure to cadmium.

1926.1127(m)(2)(iii)—The employer shall assure that signs required by this paragraph are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

1926.1127(m)(4)(i)—The employer shall train each employee who is potentially exposed to cadmium in accordance with the requirements of this section. The employer shall institute a training program, ensure employee participation in the program, and maintain a record of the contents of the training program.

1926.1127(m)(5)—Multi-employer workplace. In a multi-employer workplace, an employer who produces, uses, or stores cadmium in a manner that may expose employees of other employers to cadmium shall notify those employers of the potential hazard in accordance with paragraph (e) [Written Hazard Communication Program] of the hazard communication standard for construction, 29 CFR 1926.59 [Hazard Communication].

Inspections and Tests

1926.1127(d)(1)(i)—Prior to the performance of any construction work where employees may be potentially exposed to cadmium, the employer shall establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. The employer shall designate a competent person who shall make this determination. Investigation and material testing techniques shall be used, as appropriate, in the determination. Investigation shall include a review of relevant plans, past reports, safety data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

1926.1127(m)(2)(iii)—The employer shall assure that signs required by this paragraph are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

Recordkeeping

1926.1127(d)(1)(i)—Prior to the performance of any construction work where employees may be potentially exposed to cadmium, the employer shall establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. The employer shall designate a competent person who shall make this determination. Investigation and material testing techniques shall be used, as appropriate, in the determination. Investigation shall include a review of relevant plans, past reports, safety
data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

1926.1127(d)(2)(iv)—Where a determination conducted under paragraphs (d)(1) [Exposure Monitoring] or (d)(2) [Exposure Monitoring] of this section is made that a potentially exposed employee is not exposed to airborne concentrations of cadmium at or above the action level, the employer shall make a written record of such determination. The record shall include at least the monitoring data developed under paragraphs (d)(2)(i)-(iii) [Exposure Monitoring] of this section, where applicable, and shall also include the date of determination, and the name and social security number of each employee.

1926.1127(f)(5)(i)—Where employee exposure to cadmium exceeds the PEL and the employer is required under paragraph (f)(1) [Methods of Compliance] of this section to implement controls to comply with the PEL, prior to the commencement of the job the employer shall establish and implement a written compliance program to reduce employee exposure to or below the PEL. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, the employer shall include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

1926.1127(f)(5)(ii)—Written compliance programs shall be reviewed and updated as often and as promptly as necessary to reflect significant changes in the employer’s compliance status or significant changes in the lowest air cadmium level that is technologically feasible.

1926.1127(h)—Emergency situations. The employer shall develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan shall include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation shall be restricted from the area and normal operations halted in that area until the emergency is abated.

1926.1127(l)(2)(iii)—Recent Examination: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of paragraph (l)(2)(ii) [Initial Examination] of this section within the past 12 months. In that case, such records shall be maintained as part of the employee’s medical record and the prior exam shall be treated as if it were an initial examination for the purposes of paragraphs (l)(3) [Actions Triggered by Initial Biological Monitoring] and (4) [Periodic Medical Surveillance] of this section.

1926.1127(l)(9)—Information provided to the physician: The employer shall provide information to the examining physician. [Reference paragraph (i)(9) for specific information.]

1926.1127(l)(10)(i)—The employer shall promptly obtain a written medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain specific information. [Reference paragraph (l)(10)(i) for specific information.]

1926.1127(l)(13)(ii)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician’s written opinion, whichever is later: [Reference paragraph (l)(13) for specific information.]

1926.1127(l)(16)—Reporting. In addition to other medical events that are required to be reported on the OSHA Form No. 300, the employer shall report any abnormal condition or disorder caused by occupational exposure to cadmium associated with employment as specified in Chapter (V)(E) of the Reporting Guidelines for Occupational Injuries and Illnesses.

1926.1127(m)(1)—General. In communications concerning cadmium hazards, employers shall comply with the requirements of OSHA’s Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to the requirements concerning warning signs and labels, safety data sheets (SDS), and employee information and training. In addition, employers shall comply with the specific requirements: [Reference paragraph (m)(1) for specific information.]
1926.1127(m)(4)(i)—The employer shall train each employee who is potentially exposed to cadmium in accordance with the requirements of this section. The employer shall institute a training program, ensure employee participation in the program, and maintain a record of the contents of the training program.

1926.1127(n)(1)(i)—The employer shall establish and keep an accurate record of all air monitoring for cadmium in the workplace. [Reference paragraph (n)(1)(ii) for specific information.]

1926.1127(n)(1)(iii)—The employer shall maintain this record for at least thirty (30) years, in accordance with Sec. 1926.33 [Access to Employee Exposure and Medical Records] of this part.

1926.1127(n)(1)(iv)—The employer shall also provide a copy of the results of an employee’s air monitoring prescribed in paragraph (d) [Exposure Monitoring] of this standard to an industry trade association and to the employee’s union, if any, or, if either of such associations or unions do not exist, to another comparable organization that is competent to maintain such records and is reasonably accessible to employers and employees in the industry.

1926.1127(n)(2)(ii)—The employer shall maintain the objective data record for at least 30 years of the objective data relied upon.

1926.1127(n)(3)(i)—The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (l)(1)(i) [Medical Surveillance] of this section. [Reference paragraph (n)(3)(ii) for specific information.]

1926.1127(n)(3)(iii)—The employer shall assure that this record [Medical Surveillance] is maintained for the duration of employment plus thirty (30) years, in accordance with Sec. 1926.33 [Access to Employee Exposure and Medical Records] of this part.

1926.1127(n)(3)(iv)—At the employee’s request, the employer shall promptly provide a copy of the employee’s medical record, or update as appropriate, to a medical doctor or a union specified by the employee.

1926.1127(n)(4)(i)—Except as otherwise provided for in this section, access to all records required to be maintained by paragraphs (n)(1) through (3) [Recordkeeping] of this section shall be in accordance with the provisions of 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1926.1127(n)(4)(ii)—Within 15 days after a request, the employer shall make an employee’s medical records required to be kept by paragraph (n)(3) [Medical Surveillance] of this section available for examination and copying to the subject employee, to designated representatives, to anyone having the specific written consent of the subject employee, and after the employee’s death or incapacitation, to the employee’s family members.

Training and Communications

1926.1127(d)(5)(i)—The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. [Reference paragraph (d)(5)(ii) for more information.]

1926.1127(i)(3)(v)—The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with cadmium of the potentially harmful effects of exposure to cadmium, and that the clothing and equipment should be laundered or cleaned in a manner to effectively prevent the release of airborne cadmium in excess of the PEL.

1926.1127(l)(10)(iii)—The employer shall instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.

1926.1127(l)(15)—Information the employer must provide the employee. [Reference paragraph (l)(15) for specific information.]
1926.1127(m)(1)—General. In communications concerning cadmium hazards, employers shall comply with the requirements of OSHA’s Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to the requirements concerning warning signs and labels, safety data sheets (SDS), and employee information and training. In addition, employers shall comply with the specific requirements: [Reference paragraph (m)(1) for specific information.]

1926.1127(m)(4)(i)—The employer shall train each employee who is potentially exposed to cadmium in accordance with the requirements of this section. The employer shall institute a training program, ensure employee participation in the program, and maintain a record of the contents of the training program.

1926.1127(m)(4)(ii)—Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter. [Reference paragraph (m)(4) for specific information.]

1926.1127(m)(5)—Multi-employer workplace. In a multi-employer workplace, an employer who produces, uses, or stores cadmium in a manner that may expose employees of other employers to cadmium shall notify those employers of the potential hazard in accordance with paragraph (e) [Written Hazard Communication Program] of the hazard communication standard for construction, 29 CFR 1926.59 [Hazard Communication].

1926.1127(n)(3)(iv)—At the employee’s request, the employer shall promptly provide a copy of the employee’s medical record, or update as appropriate, to a medical doctor or a union specified by the employee.

Exposure Monitoring

1926.1127(d)(1)(i)—Prior to the performance of any construction work where employees may be potentially exposed to cadmium, the employer shall establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. The employer shall designate a competent person who shall make this determination. Investigation and material testing techniques shall be used, as appropriate, in the determination. Investigation shall include a review of relevant plans, past reports, safety data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

1926.1127(d)(2)(i)—Initial monitoring. Except as provided for in paragraph (d)(2)(iii) [Exposure Monitoring] of this section, where a determination conducted under paragraph (d)(1)(i) [Exposure Monitoring] of this section shows the possibility of employee exposure to cadmium at or above the action level, the employer shall conduct exposure monitoring as soon as practicable that is representative of the exposure for each employee in the workplace who is or may be exposed to cadmium at or above the action level.

1926.1127(d)(2)(ii)—In addition, if the employee periodically performs tasks that may expose the employee to a higher concentration of airborne cadmium, the employee shall be monitored while performing those tasks.

1926.1127(d)(3)(i)—If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level, the employer shall monitor at a frequency and pattern needed to assure that the monitoring results reflect with reasonable accuracy the employee’s typical exposure levels, given the variability in the tasks performed, work practices, and environmental conditions on the job site, and to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls.

1926.1127(d)(4)—Additional monitoring. The employer also shall institute the exposure monitoring required under paragraphs (d)(2)(i) and (d)(3) [Exposure Monitoring] of this section whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional employees being exposed to cadmium at or above the action level or in employees already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer or competent person has any reason to suspect that any other change might result in such further exposure.

1926.1127(d)(5)(i)—The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. [Reference paragraph (d)(5)(ii) for more information.]
Medical Surveillance

1926.1127(g)(2)(ii)—If an employee exhibits breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with paragraph (l)(6)(ii) [Examination for Respirator Use] of this section to determine if the employee can use a respirator while performing the required duties.

1926.1127(l)(1)(i)(A)—Currently exposed—The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level and all employees who perform the following tasks, operations or jobs: Electrical grounding with cadmium welding; cutting, brazing, burning, grinding or welding on surfaces that were painted with cadmium-containing paints; electrical work using cadmium-coated conduit; use of cadmium containing paints; cutting and welding cadmium-plated steel; brazing or welding with cadmium alloys; fusing of reinforced steel by cadmium welding; maintaining or retrofitting cadmium-coated equipment; and, wrecking and demolition where cadmium is present.

1926.1127(l)(1)(i)(B)—Previously exposed—The employer shall also institute a medical surveillance program for all employees who might previously have been exposed to cadmium by the employer prior to the effective date of this standard in tasks specified under paragraph (l)(1)(i)(A) [Medical Surveillance] of this section, unless the employer demonstrates that the employee did not in the years prior to the effective date of this section work in those tasks for the employer with exposure to cadmium for an aggregated total of more than 12 months.

1926.1127(l)(1)(ii)—To determine an employee’s fitness for using a respirator, the employer shall provide the limited medical examination specified in paragraph (l)(6) [Examination for Respirator Use] of this section.

1926.1127(l)(1)(iii)—The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a licensed physician, who has read and is familiar with the health effects section of appendix A [Substance Safety Data Sheet—Cadmium] to this section, the regulatory text of this section, the protocol for sample handling and lab selection in appendix F [Nonmandatory Protocol for Biological Monitoring] to this section, and the questionnaire of appendix D [Occupational Health History Interview with Reference to Cadmium Exposure] to this section. [Reference paragraph (l)(1) for specific information.]

1926.1127(l)(2)(i)—For employees covered by medical surveillance under paragraph (l)(1)(i) [Medical Surveillance] of this section, the employer shall provide an initial medical examination. The examination shall be provided to those employees within 30 days after initial assignment to a job with exposure to cadmium or no later than 90 days after the effective date of this section, whichever date is later. [Reference paragraph (l)(2)(ii) for specific information.]

1926.1127(l)(2)(ii)(B)—Biological monitoring that includes specific tests. [Reference paragraph (l)(2)(ii)(b) and (l)(3) for specific information.]

1926.1127(l)(2)(iii)—Recent Examination: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of paragraph (l)(2)(ii) [Initial Examination] of this section within the past 12 months. In that case, such records shall be maintained as part of the employee’s medical record and the prior exam shall be treated as if it were an initial examination for the purposes of paragraphs (l)(3) [Actions Triggered by Initial Biological Monitoring] and (4) [Periodic Medical Surveillance] of this section.

1926.1127(l)(3)—Actions triggered by initial biological monitoring. [Reference paragraph (l)(3) for specific information.]

1926.1127(l)(4)(i)—For each employee who is covered by medical surveillance under paragraph (l)(1)(i)(A) [Medical Surveillance] of this section because of current or anticipated exposure to cadmium, the employer shall provide at least the minimum level of periodic medical surveillance, which consists of periodic medical examinations and periodic biological monitoring. A periodic medical examination shall be provided within one year after the initial examination required by paragraph (l)(2) [Initial Examination] of this section and thereafter at least biennially. Biological sampling shall be provided at least annually either as part of a periodic medical examination or separately as periodic biological monitoring. [Reference paragraph (l)(4)(ii) for specific information.]

1926.1127(l)(4)(iii)—Periodic biological monitoring shall be provided in accordance with paragraph (l)(2)(ii)(B) [Initial Examination] of this section.
If the results of a medical examination carried out in accordance with this section indicate any laboratory or clinical finding consistent with cadmium toxicity that does not require employer action under paragraphs (l)(2) [Initial Examination], (3) [Actions Triggered by Initial Biological Monitoring] or (4) [Periodic Medical Surveillance] of this section, the employer shall take the following steps and continue to take them until the physician determines that they are no longer necessary.

Periodically reassess: The employee’s work practices and personal hygiene; the employee’s respirator use, if any; the employee’s smoking history and status; the respiratory protection program; the hygiene facilities; the maintenance and effectiveness of the relevant engineering controls; and take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee’s excess exposure to cadmium.

Provide semi-annual medical reexaminations to evaluate the abnormal clinical sign(s) of cadmium toxicity until the results are normal or the employee is medically removed.

To determine an employee’s fitness for respirator use, the employer shall provide a medical examination that includes the elements specified in (l)(6)(i)-(D) [Examination for Respirator Use] of this section. This examination shall be provided prior to the employee’s being assigned to a job that requires the use of a respirator or no later than 90 days after this section goes into effect, whichever date is later, to any employee without a medical examination within the preceding 12 months that satisfies the requirements of this paragraph. [Reference paragraph (l)(6)(i) for specific information.]

Where the results of the examination required under paragraphs (l)(6)(i), (ii) or (iii) [Examination for Respirator Use] of this section are abnormal, medical limitation or prohibition of respirator use shall be considered. If the employee is allowed to wear a respirator, the employee’s ability to continue to do so shall be periodically evaluated by a physician.

In addition to the medical surveillance required in paragraphs (l)(2)-(6) [Medical Surveillance] of this section, the employer shall provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

At termination of employment, the employer shall provide a medical examination in accordance with paragraph (l)(4)(ii) [Periodic Medical Surveillance] of this section, including a chest X-ray where necessary, to any employee to whom at any prior time the employer was required to provide medical surveillance under paragraphs (l)(1)(i) [Medical Surveillance] or (l)(7) [Emergency Examinations] of this section. However, if the last examination satisfied the requirements of paragraph (l)(4)(ii) [Periodic Medical Surveillance] of this standard and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in paragraphs (l)(3) [Actions Triggered by Initial Biological Monitoring] or (l)(5) [Actions Triggered by Medical Examinations] of this section.

Information provided to the physician: The employer shall provide information to the examining physician. [Reference paragraph (i)(9) for specific information.]

The employer shall promptly obtain a written medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain specific information. [Reference paragraph (l)(10)(i) for specific information.]

The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician’s written opinion, whichever is later. [Reference paragraph (l)(13) for specific information.]

Access. Access to regulated areas shall be limited to authorized persons.
1926.1127(l)(6)(iv)—Where the results of the examination required under paragraphs (l)(6)(i), (ii) or (iii) [Examination for Respirator Use] of this section are abnormal, medical limitation or prohibition of respirator use shall be considered. If the employee is allowed to wear a respirator, the employee’s ability to continue to do so shall be periodically evaluated by a physician.

1926.1127(l)(10)(i)—The employer shall promptly obtain a written medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain specific information. [Reference paragraph (l)(10)(i) for specific information.]

1926.1127(l)(13)(ii)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician’s written opinion, whichever is later: [Reference paragraph (l)(13) for specific information.]

Competent Person

1926.1127(d)(1)(i)—Prior to the performance of any construction work where employees may be potentially exposed to cadmium, the employer shall establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. The employer shall designate a competent person who shall make this determination. Investigation and material testing techniques shall be used, as appropriate, in the determination. Investigation shall include a review of relevant plans, past reports, safety data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

1926.1127(d)(1)(ii)—Where cadmium has been determined to be present in the workplace, and it has been determined that there is a possibility the employee’s exposure will be at or above the action level, the competent person shall identify employees potentially exposed to cadmium at or above the action level.

1926.1127(d)(4)—Additional monitoring. The employer also shall institute the exposure monitoring required under paragraphs (d)(2) (i) and (d)(3) [Exposure Monitoring] of this section whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional employees being exposed to cadmium at or above the action level or in employees already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer or competent person has any reason to suspect that any other change might result in such further exposure.

1926.1127(f)(5)(iii)—A competent person shall review the comprehensive compliance program initially and after each change.

Signs, Markings and Tags

1926.1127(e)(1)—Establishment. The employer shall establish a regulated area wherever an employee’s exposure to airborne concentrations of cadmium is, or can reasonably be expected to be in excess of the permissible exposure limit (PEL).

1926.1127(e)(2)—Demarcation. Regulated areas shall be demarcated from the rest of the workplace in any manner that adequately establishes and alerts employees of the boundaries of the regulated area, including employees who are or may be incidentally in the regulated areas, and that protects persons outside the area from exposure to airborne concentrations of cadmium in excess of the PEL.

1926.1127(i)(2)(iv)—The employer shall assure that containers of contaminated protective clothing and equipment that are to be taken out of the change rooms or the workplace for laundering, cleaning, maintenance or disposal shall bear labels in accordance with paragraph (m)(2) [Warning Signs] of this section.

1926.1127(k)(7)—Waste, scrap, debris, bags, containers, personal protective equipment, and clothing contaminated with cadmium and consigned for disposal shall be collected and disposed of in sealed impermeable bags or other closed, impermeable containers. These bags and containers shall be labeled in accordance with paragraph (m)(2) [Warning Signs] of this section.
1926.1127(m)(2)(i)—Warning signs shall be provided and displayed in regulated areas. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

1926.1127(m)(3)(i)—Shipping and storage containers containing cadmium, cadmium compounds, or cadmium contaminated clothing, equipment, waste, scrap, or debris shall bear appropriate warning labels, as specified in paragraph (m)(3)(ii) [Warning Labels] of this section.

1926.1127(m)(2)(iii)—The employer shall assure that signs required by this paragraph are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

1926.1127(m)(3)(iii)—Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

1926.1128—BENZENE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.1028 [Benzene] of this chapter.

1910.1028—BENZENE

Scope/Application: This section applies to all occupational exposures to benzene.

Exception: This standard does not apply to the storage, transportation, distribution, dispensing, sale or use of gasoline, motor fuels, or other fuels containing benzene subsequent to its final discharge from bulk wholesale storage facilities; loading and unloading operations at bulk wholesale storage facilities which use vapor control systems for all loading and unloading operations, storage, transportation, distribution or sale of benzene or liquid mixtures containing more than 0.1 percent benzene in intact containers or in transportation pipelines while sealed in such a manner as to contain benzene vapors or liquid; containers and pipelines carrying mixtures with less than 0.1 percent benzene and natural gas processing plants processing gas with less than 0.1 percent benzene; oil and gas drilling, production and servicing operations; coke oven batteries; the cleaning and repair of barges and tankers which have contained benzene are excluded from paragraph (f) [Methods of Compliance], paragraph (e)(1) [Exposure Monitoring—General], and paragraph (e)(6) [Accuracy of Monitoring].

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—compliance program, respirator program, medical surveillance program, training program
• Recordkeeping—retention requirements, records
• Training and Communications—program initial and annual training
• Exposure Monitoring—determination, periodic monitoring, posted results
• Medical Surveillance—program, initial, annual and “other” examinations, written opinion
• Qualified Person—physician
• Signs, Markings and Tags—regulated area established

Programs, Policies and Procedures

1910.1028(e)(5)(i)—The employer shall institute the exposure monitoring required under paragraphs (e)(2) [Initial Monitoring] and (e)(3) [Periodic Monitoring and Monitoring Frequency] of this section when there has been a change in the production, process, control equipment, personnel or work practices which may result in new or additional exposures to benzene, or when the employer has any reason to suspect a change which may result in new or additional exposures.

1910.1028(f)(2)(i)—When any exposures are over the PEL, the employer shall establish and implement a written program to reduce employee exposure to or below the PEL primarily by means of engineering and work practice controls, as required by paragraph (f)(1) [Engineering and Work Practice Controls] of this section.
The written program shall include a schedule for development and implementation of the engineering and work practice controls. These plans shall be reviewed and revised as appropriate based on the most recent exposure monitoring data, to reflect the current status of the program.

The employer must implement a respiratory protection program in accordance with Sec. 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii), (d)(3)(iii)(b)(1) and (2)), and (f) through (m), which covers each employee required by this section to use a respirator.

The employer shall make available a medical surveillance program for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; for employees who are or may be exposed to benzene at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 ppm of benzene for 30 or more days in a year prior to the effective date of the standard when employed by their current employer; and for employees involved in the tire building operations called tire building machine operators, who use solvents containing greater than 0.1 percent benzene.

For persons required to use respirators for at least 30 days a year, a pulmonary function test shall be performed every three (3) years. A specific evaluation of the cardiopulmonary system shall be made at the time of the pulmonary function test.

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

Recordkeeping

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

When any exposures are over the PEL, the employer shall establish and implement a written program to reduce employee exposure to or below the PEL primarily by means of engineering and work practice controls, as required by paragraph (f)(1) [Engineering and Work Practice Controls] of this section.

The written program shall include a schedule for development and implementation of the engineering and work practice controls. These plans shall be reviewed and revised as appropriate based on the most recent exposure monitoring data, to reflect the current status of the program.

Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (i)(6) for specific information.]

For each examination under this section, the employer shall obtain and provide the employee with a copy of the examining physician’s written opinion within 15 days of the examination.

Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician in consultation with the hematologist/internist. This decision shall be communicated in writing to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

The employer shall establish and maintain an accurate record of all measurements required by paragraph (e) [Monitoring] of this section, in accordance with 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].
1910.1028(k)(2)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance required by paragraph (i) [Medical Surveillance] of this section, in accordance with 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

1910.1028(k)(2)(iii)—The employer shall maintain this record for at least the duration of employment plus 30 years, in accordance with 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

1910.1028(k)(4)—Transfer of records. The employer shall comply with the requirements involving transfer of records as set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1028(i)(1)(iii)—The employer shall assure that persons other than licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate governmental, academic or professional institution.

1910.1028(i)(6)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (i)(6) for specific information.]

1910.1028(i)(7)(i)—For each examination under this section, the employer shall obtain and provide the employee with a copy of the examining physician’s written opinion within 15 days of the examination.

1910.1028(i)(8)(ii)—Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician in consultation with the hematologist/internist. This decision shall be communicated in writing to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

1910.1028(i)(8)(iv)—Whenever an employee is temporarily removed from benzene exposure pursuant to paragraph (i)(8)(i) or (i)(8)(ii) [Medical Removal Plan] of this section, the employer shall transfer the employee to a comparable job for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible, but in no event higher than the action level. The employer shall maintain the employee’s current wage rate, seniority and other benefits. If there is no such job available, the employer shall provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

1910.1028(i)(8)(v)—Whenever an employee is removed permanently from benzene exposure based on a physician’s recommendation pursuant to paragraph (i)(8)(iii) [Medical Removal Plan] of this section, the employer shall be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. The employer shall assure that such employee suffers no reduction in current wage rate, seniority or other benefits as a result of the transfer.

1910.1028(j)(3)(i)—The employer shall provide employees with information and training at the time of their initial assignment to a work area where benzene is present. If exposures are above the action level, employees shall be provided with information and training at least annually thereafter. [Reference paragraph (j)(3) for specific information.]

Exposure Monitoring

1910.1028(e)(1)(i)—Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee’s average exposure to airborne benzene.

1910.1028(e)(2)(ii)—The initial monitoring required under paragraph (e)(2)(i) [Initial Monitoring] of this section shall be completed by 60 days after the effective date of this standard or within 30 days of the introduction of benzene into the workplace. Where the employer has monitored within one year prior to the effective date of this standard and the monitoring
satisfies all other requirements of this section, the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (e)(2)(i) [Initial Monitoring] of this section.

1910.1028(e)(3)(i)—If the monitoring required by paragraph (e)(2)(i) [Initial Monitoring] of this section reveals employee exposure at or above the action level but at or below the TWA, the employer shall repeat such monitoring for each such employee at least every year.

1910.1028(e)(3)(ii)—If the monitoring required by paragraph (e)(2)(i) [Initial Monitoring] of this section reveals employee exposure above the TWA, the employer shall repeat such monitoring for each such employee at least every six (6) months.

1910.1028(e)(3)(iv)—Monitoring for the STEL shall be repeated as necessary to evaluate exposures of employees subject to short term exposures.

1910.1028(e)(5)(i)—The employer shall institute the exposure monitoring required under paragraphs (e)(2) [Initial Monitoring] and (e)(3) [Periodic Monitoring and Monitoring Frequency] of this section when there has been a change in the production, process, control equipment, personnel or work practices which may result in new or additional exposures to benzene, or when the employer has any reason to suspect a change which may result in new or additional exposures.

1910.1028(e)(5)(ii)—Whenever spills, leaks, ruptures or other breakdowns occur that may lead to employee exposure, the employer shall monitor (using area or personal sampling) after the cleanup of the spill or repair of the leak, rupture or other breakdown to ensure that exposures have returned to the level that existed prior to the incident.

1910.1028(e)(7)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Medical Surveillance

1910.1028(i)(1)(i)—The employer shall make available a medical surveillance program for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; for employees who are or may be exposed to benzene at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 ppm of benzene for 30 or more days in a year prior to the effective date of the standard when employed by their current employer; and for employees involved in the tire building operations called tire building machine operators, who use solvents containing greater than 0.1 percent benzene.

1910.1028(i)(3)(i)—The employer shall provide each employee covered under paragraph (i)(1)(i) [Medical Surveillance] of this section with a medical examination annually following the previous examination.

1910.1028(i)(4)(i)—In addition to the surveillance required by paragraph (i)(1)(i) [Medical Surveillance], if an employee is exposed to benzene in an emergency situation, the employer shall have the employee provide a urine sample at the end of the employee's shift and have a urinary phenol test performed on the sample within 72 hours. The urine specific gravity shall be corrected to 1.024.

1910.1028(i)(5)(i)—Where the results of the complete blood count required for the initial and periodic examinations indicate any of the following abnormal conditions exist, then the blood count shall be repeated within 2 weeks.

1910.1028(i)(6)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (i)(6) for specific information.]

1910.1028(i)(7)(i)—For each examination under this section, the employer shall obtain and provide the employee with a copy of the examining physician's written opinion within 15 days of the examination.

1910.1028(i)(8)(ii)—Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where
benzene exposure is above the action level shall be made by the physician in consultation with the hematologist/internist. This decision shall be communicated in writing to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

1910.1028(i)(8)(v)—Whenever an employee is removed permanently from benzene exposure based on a physician’s recommendation pursuant to paragraph (i)(8)(iii) [Medical Removal Plan] of this section, the employee shall be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. The employer shall assure that such employee suffers no reduction in current wage rate, seniority or other benefits as a result of the transfer.

Qualified Person

1910.1028(i)(6)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (i)(6) for specific information.]

1910.1028(i)(7)(i)—For each examination under this section, the employer shall obtain and provide the employee with a copy of the examining physician’s written opinion within 15 days of the examination.

1910.1028(i)(8)(ii)—Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician in consultation with the hematologist/internist. This decision shall be communicated in writing to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

1910.1028(i)(8)(v)—Whenever an employee is removed permanently from benzene exposure based on a physician’s recommendation pursuant to paragraph (i)(8)(iii) [Medical Removal Plan] of this section, the employee shall be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. The employer shall assure that such employee suffers no reduction in current wage rate, seniority or other benefits as a result of the transfer.

Signs, Markings and Tags

1910.1028(d)(1)—The employer shall establish a regulated area wherever the airborne concentration of benzene exceeds or can reasonably be expected to exceed the permissible exposure limits, either the 8-hour time weighted average exposure of 1 ppm or the short-term exposure limit of 5 ppm for 15 minutes.

1926.1129—COKE OVEN EMISSIONS

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.1029 [Coke Oven Emissions] of this chapter.

1910.1029—COKE OVEN EMISSIONS

Scope/Application: This section applies to the control of employee exposure to coke oven emissions, except that this section shall not apply to working conditions with regard to which other Federal agencies exercise statutory authority to prescribe or enforce standards affecting occupational safety and health.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—written work practice controls, inspection program, respirator program, medical surveillance program
• Inspections and Tests—inspection program, system, corrective action
• Recordkeeping—retention requirements
• Training and Communications—inform launderers, instruct physician, initial and annual training
• Exposure Monitoring—monitoring every 3 months, after new process or change, posted results
• Medical Surveillance—program, initial, annual, and “other” examinations
• Qualified Person—physician
• Signs, Markings and Tags—labels, posted, regulated areas

Programs, Policies and Procedures

1910.1029(f)(1)(i)(a)—The employer shall institute the engineering and work practice controls listed in paragraphs (f)(2), (f)(3) and (f)(4) [Priority of Compliance Methods] of this section in existing coke oven batteries at the earliest possible time, but not later than January 20, 1980, except to the extent that the employer can establish that such controls are not feasible. In determining the earliest possible time for institution of engineering and work practice controls, the requirement, effective August 27, 1971, to implement feasible administrative or engineering controls to reduce exposures to coal tar pitch volatiles, shall be considered. Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposures to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest level achievable by these controls and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (g) [Respiratory Protection] of this section.

1910.1029(f)(1)(ii)(a)—The employer shall institute the best available engineering and work practice controls on all new or rehabilitated coke oven batteries to reduce and maintain employee exposures at or below the permissible exposure limit, except to the extent that the employer can establish that such controls are not feasible. Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposures to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest level achievable by these controls and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (g) [Respiratory Protection] of this section.

1910.1029(f)(1)(iii)(a)—The employer shall institute engineering and work practice controls on all beehive ovens at the earliest possible time to reduce and maintain employee exposures at or below the permissible exposure limit, except to the extent that the employer can establish that such controls are not feasible. In determining the earliest possible time for institution of engineering and work practice controls, the requirement, effective August 27, 1971, to implement feasible administrative or engineering controls to reduce exposures to coal tar pitch volatiles, shall be considered. Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposures to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest level achievable by these controls and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (g) [Respiratory Protection] of this section.

1910.1029(f)(3)(i)(b)—Establishment and implementation of a detailed written charging procedure, designed and operated to eliminate emissions during charging for each battery.

1910.1029(f)(3)(i)(c)—Establishment and implementation of a detailed written charging procedure, designed and operated to eliminate emissions during charging of each pipeline or enclosed charged battery.

1910.1029(f)(3)(ii)(d)—An inspection system and corrective action program to control door emissions to the maximum extent possible.

1910.1029(f)(3)(iv)—Maintenance and repair. The employer shall operate existing coke oven batteries pursuant to a detailed written procedure of maintenance and repair established and implemented for the effective control of coke oven emissions consisting of specific elements. [Reference paragraph (f)(3) for specific information.]

1910.1029(f)(6)(i)—Each employer shall establish and implement a written program to reduce exposures solely by means of the engineering and work practice controls required in paragraph (f) [Priority of Compliance Methods] of this section.
If, after implementing all controls required by paragraph (f)(2)-(f)(4) [Priority of Compliance Methods—Controls] of this section, or after January 20, 1980, whichever is sooner, or after completion of a new or rehabilitated battery the permissible exposure limit is still exceeded, the employer shall develop a detailed written program and schedule for the implementation of any additional engineering controls and work practices necessary to reduce exposure to or below the permissible exposure limit.

Written plans for such programs shall be submitted, upon request, to the Secretary and the Director, and shall be available at the worksite for examination and copying by the Secretary, the Director, and the authorized employee representative. The plans required under paragraph (f)(6) [Compliance Program] of this section shall be revised and updated at least annually to reflect the current status of the program.

Respirator program. The employer must implement a respiratory protection program in accordance with 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

Each employer shall institute a medical surveillance program for all employees who are employed in a regulated area at least 30 days per year.

The employer shall train each employee who is employed in a regulated area in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

Inspections and Tests

Inspection and cleaning of goosenecks and standpipes prior to each charge to a specified minimum diameter sufficient to effectively move the evolved gases from the oven to the collector mains.

Inspection for roof carbon build-up prior to each charge and removal of roof carbon as necessary to provide an adequate gas channel so that the gases are effectively moved from the oven into the collector mains.

Inspection of the steam aspiration system prior to each charge so that sufficient pressure and volume is maintain to effectively move the gases from the oven to the collector mains.

Inspection of steam nozzles and liquor sprays prior to each charge and cleaning as necessary so that the steam nozzles and liquor sprays are clean.

Inspection of standpipe caps prior to each charge and cleaning and luting or both as necessary so that the gases are effectively moved from the oven to the collector mains.

Inspection of charging holes and lids for cracks, warpage and other defects prior to each charge and removal of carbon to prevent emissions, and application of luting material to standpipe and charging hole lids where necessary to obtain a proper seal.

An inspection system and corrective action program to control door emissions to the maximum extent possible.

Inspection, adjustment and correction of heating flue temperatures and defective flues at least weekly and after any green push, so as to prevent green pushes.

Regular inspection of all controls, including goosenecks, standpipes, standpipe caps, charging hold lids and castings, jumper pipes and air seals for cracks, misalignment or other defects and prompt implementation of the necessary repairs as soon as possible.

Regular inspection of the damper system, aspiration system and collector main for cracks or leakage, and prompt implementation of the necessary repairs.
1910.1029(f)(3)(iv)(d)—Regular inspection of the heating system and prompt implementation of the necessary repairs.


1910.1028(i)(3)(iii)—For persons required to use respirators for at least 30 days a year, a pulmonary function test shall be performed every three (3) years. A specific evaluation of the cardiopulmonary system shall be made at the time of the pulmonary function test.

Recordkeeping

1910.1029(e)(3)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1910.1029(f)(3)(i)(b)—Establishment and implementation of a detailed written charging procedure, designed and operated to eliminate emissions during charging for each battery.

1910.1029(f)(3)(i)(c)—Establishment and implementation of a detailed written charging procedure, designed and operated to eliminate emissions during charging of each pipeline or enclosed charged battery.

1910.1029(f)(6)(i)—Each employer shall establish and implement a written program to reduce exposures solely by means of the engineering and work practice controls required in paragraph (f) [Priority of Compliance Methods] of this section.

1910.1029(f)(6)(iii)—If, after implementing all controls required by paragraph (f)(2)-(f)(4) [Priority of Compliance Methods—Controls] of this section, or after January 20, 1980, whichever is sooner, or after completion of a new or rehabilitated battery the permissible exposure limit is still exceeded, the employer shall develop a detailed written program and schedule for the implementation of any additional engineering controls and work practices necessary to reduce exposure to or below the permissible exposure limit.

1910.1029(j)(1)(iii)—The employer shall inform any employee who refuses any required medical examination of the possible health consequences of such refusal and shall obtain a signed statement from the employee indicating that the employee understands the risk involved in the refusal to be examined.

1910.1029(j)(4)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (j)(4) for specific information.]

1910.1029(j)(5)(i)—The employer shall obtain a written opinion from the examining physician. [Reference paragraph (j) (5)(i) for specific information.]

1910.1029(j)(5)(ii)—The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

1910.1029(j)(5)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

1910.1029(m)(1)—Exposure measurements. The employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to coke oven emissions required in paragraph (e) of this section. [Reference paragraph (m)(1) for specific information.]

1910.1029(m)(1)(ii)—The employer shall maintain this record for at least 40 years or for the duration of employment plus 20 years, whichever is longer.

1910.1029(m)(2)—Medical surveillance. The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (j) [Medical Surveillance] of this section. [Reference paragraph (m)(2)(i) for specific information.]
1910.1029(m)(2)(iii)—The employer shall maintain medical records required under paragraph (m)(2) [Recordkeeping] of this section for at least 40 years, or for the duration of employment plus 20 years, whichever is longer.

1910.1029(m)(4)(i)—Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by paragraph (m) [Recordkeeping] of this section.

1910.1029(m)(4)(ii)—The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1029(e)(3)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1910.1029(h)(2)(vi)—The employer shall inform any person who cleans or launders protective clothing required by this section, of the potentially harmful effects of exposure to coke oven emissions.

1910.1029(j)(1)(iii)—The employer shall inform any employee who refuses any required medical examination of the possible health consequences of such refusal and shall obtain a signed statement from the employee indicating that the employee understands the risk involved in the refusal to be examined.

1910.1029(j)(4)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (j)(4) for specific information.]

1910.1029(j)(5)(i)—The employer shall obtain a written opinion from the examining physician. [Reference paragraph (j)(5)(i) for specific information.]

1910.1029(j)(5)(ii)—The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

1910.1029(j)(5)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

1910.1029(k)(1)(i)—The employer shall train each employee who is employed in a regulated area in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

1910.1029(k)(1)(ii)—The training program shall be provided as of January 27, 1977 for employees who are employed in the regulated area at that time or at the time of initial assignment to a regulated area. [Reference paragraph (k)(1)(iv) for specific information.]

1910.1029(k)(1)(iii)—The training program shall be provided at least annually for all employees who are employed in the regulated area, except that training regarding the occupational safety and health hazards associated with exposure to coke oven emissions and the purpose, proper use, and limitations of respiratory protective devices shall be provided at least quarterly until January 20, 1978.

Exposure Monitoring

1910.1029(e)(1)(i)—Each employer who has a place of employment where coke oven emissions are present shall monitor employees employed in the regulated area to measure their exposure to coke oven emissions.

1910.1029(e)(1)(iv)—The employer shall repeat the monitoring and measurements required by this paragraph (e)(1) [Monitoring Program] at least every three months.
1910.1029(e)(2)—Redetermination. Whenever there has been a production, process, or control change which may result in new or additional exposure to coke oven emissions, or whenever the employer has any other reason to suspect an increase in employee exposure, the employer shall repeat the monitoring and measurements required by paragraph (e)(1) [Monitoring Program] of this section for those employees affected by such change or increase.

1910.1029(e)(3)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Medical Surveillance

1910.1029(j)(1)(i)—Each employer shall institute a medical surveillance program for all employees who are employed in a regulated area at least 30 days per year.

1910.1029(j)(1)(ii)—This program shall provide each employee covered under paragraph (j)(1)(i) [Medical Surveillance] of this section with an opportunity for medical examinations in accordance with this paragraph (j) [Medical Surveillance].

1910.1029(j)(1)(iii)—The employer shall inform any employee who refuses any required medical examination of the possible health consequences of such refusal and shall obtain a signed statement from the employee indicating that the employee understands the risk involved in the refusal to be examined.

1910.1029(j)(2)—Initial examinations. At the time of initial assignment to a regulated area or upon the institution of the medical surveillance program, the employer shall provide a medical examination for employees covered under paragraph (j)(1)(i) [Medical Surveillance] of this section.

1910.1029(j)(3)(i)—The employer shall provide the examinations specified in paragraphs (j)(2)(i)-(vi) [Initial Examinations] of this section at least annually for employees covered under paragraph (j)(1)(i) [Medical Surveillance] of this section.

1910.1029(j)(3)(ii)—The employer must provide the examinations specified in paragraphs (j)(2)(i) through (j)(2)(vii) [Initial Examinations] of this section at least annually for employees 45 years of age or older or with five (5) or more years employment in the regulated area.

1910.1029(j)(3)(iii)—Whenever an employee who is 45 years of age or older or with five (5) or more years employment in a regulated area transfers or is transferred from employment in a regulated area, the employer must continue to provide the examinations specified in paragraphs (j)(2)(i) through (j)(2)(vii) [Initial Examinations] of this section at least annually as long as that employee is employed by the same employer or a successor employer.

1910.1029(j)(3)(iv)—Whenever an employee has not taken the examinations specified in paragraphs (j)(3)(i)-(iii) [Periodic Examinations] of this section with the six (6) months preceding the termination of employment the employer shall provide such examinations to the employee upon termination of employment.

1910.1029(j)(4)—Information provided to the physician. The employer shall provide information to the examining physician.

1910.1029(j)(5)(i)—The employer shall obtain a written opinion from the examining physician.

1910.1029(j)(5)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

Qualified Person

1910.1029(j)(4)—Information provided to the physician. The employer shall provide information to the examining physician.
The employer shall obtain a written opinion from the examining physician. [Reference paragraph (j)(5)(i) for specific information.]

Signs, Markings and Tags

The employer shall establish regulated areas and shall limit access to them to authorized persons.

The employer shall post signs in the regulated area bearing the legends.

The employer shall apply precautionary labels to all containers of protective clothing contaminated with coke oven emissions bearing the legend.

1926.1144—1,2-DIBROMO-3-CHLOROPROPANE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.1044 [1,2-Dibromo-3-Chloropropane] of this chapter.

1910.1044—1,2-DIBROMO-3-CHLOROPROPANE

Scope/Application: This section applies to occupational exposure to 1,2-dibromo-3-chloropropane (DBCP).

Exception: This standard does not apply to: exposure to DBCP which results solely from the application and use of DBCP as a pesticide; or the storage, transportation, distribution or sale of DBCP in intact containers sealed in such a manner as to prevent exposure to DBCP vapors or liquid.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—work controls, compliance program, respirator program, action plan, medical surveillance program, training program
• Recordkeeping—retention requirements, records
• Training and Communications—initial training
• Exposure Monitoring—initially, every 6 months, emergency, and quarterly monitoring, posted results
• Medical Surveillance—program, initial and annual examinations
• Qualified Person—physician
• Signs, Markings and Tags—regulated areas

Programs, Policies and Procedures

Priority of compliance methods. The employer shall institute engineering and work practice controls to reduce and maintain employee exposures to DBCP at or below the permissible exposure limit, except to the extent that the employer establishes that such controls are not feasible. Where feasible engineering and work practice controls are not sufficient to reduce employee exposures to within the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest level achievable by these controls, and shall supplement them by use of respiratory protection.

The employer shall establish and implement a written program to reduce employee exposures to DBCP to or below the permissible exposure limit solely by means of engineering and work practice controls as required by paragraph (g)(1) [Methods of Compliance] of this section.

Respirator program. The employer must implement a respiratory protection program in accordance with Sec. 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

A written plan for emergency situations shall be developed for each workplace in which DBCP is present.
1910.1044(m)(1)(i)—The employer shall make available a medical surveillance program for employees who work in regulated areas and employees who are subjected to DBCP exposures in an emergency situation. [Reference paragraph (m) for specific information.]

1910.1044(n)(1)(i)—The employer shall train each employee who may be exposed to DBCP in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

Recordkeeping

1910.1044(g)(2)(i)—The employer shall establish and implement a written program to reduce employee exposures to DBCP to or below the permissible exposure limit solely by means of engineering and work practice controls as required by paragraph (g)(1) [Methods of Compliance] of this section.

1910.1044(i)(1)(i)—A written plan for emergency situations shall be developed for each workplace in which DBCP is present.

1910.1044(m)(4)—Information provided to the physician. The employer shall provide the following information to the examining physician. [Reference paragraph (m)(4) for specific information.]

1910.1044(m)(5)(i)—For each examination under this section, the employer shall obtain and provide the employee with a written opinion from the examining physician.

1910.1044(p)(1)(i)—The employer shall establish and maintain an accurate record of all monitoring required by paragraph (f) [Exposure Monitoring] of this section.

1910.1044(p)(1)(iii)—The employer shall maintain this record for at least 40 years or the duration of employment plus 20 years, whichever is longer.

1910.1044(p)(2)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance required by paragraph (m) [Medical Surveillance] of this section.

1910.1044(p)(2)(iii)—The employer shall maintain this record for at least 40 years or the duration of employment plus 20 years, whichever is longer.

1910.1044(p)(4)(i)—If the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by paragraph (p) [Recordkeeping] of this section for the prescribed period.

1910.1044(p)(4)(ii)—The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1044(f)(5)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1910.1044(m)(4)—Information provided to the physician. The employer shall provide the following information to the examining physician. [Reference paragraph (m)(4) for specific information.]

1910.1044(m)(5)(i)—For each examination under this section, the employer shall obtain and provide the employee with a written opinion from the examining physician.

1910.1044(m)(5)(ii)—The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.
1910.1044(m)(6)—Emergency situations. If the employee is exposed to DBCP in an emergency situation, the employer shall provide the employee with a sperm count test as soon as practicable, or, if the employee has been vasectomy or is unable to produce a semen specimen, the hormone tests contained in paragraph (m)(2)(iii) [Medical Surveillance] of this section. The employer shall provide these same tests three months later.

1910.1044(n)(1)(i)—The employer shall train each employee who may be exposed to DBCP in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

Exposure Monitoring

1910.1044(f)(2)—Initial. Each employer who has a place of employment in which DBCP is present, shall monitor each workplace and work operation to accurately determine the airborne concentrations of DBCP to which employees may be exposed.

1910.1044(f)(3)(i)—If the monitoring required by this section reveals employee exposures to be at or below the permissible exposure limit, the employer must repeat these measurements at least every 6 months.

1910.1044(f)(3)(ii)—If the monitoring required by this section reveals employee exposures to be in excess of the permissible exposure limit, the employer must repeat these measurements for each such employee at least quarterly. The employer must continue quarterly monitoring until at least two consecutive measurements, taken at least seven (7) days apart, are at or below the permissible exposure limit. Thereafter the employer must monitor at least every 6 months.

1910.1044(f)(4)—Additional. Whenever there has been a production, process, control, or personnel change which may result in any new or additional exposure to DBCP, or whenever the employer has any reason to suspect new or additional exposures to DBCP, the employer shall monitor the employees potentially affected by such change for the purpose of redetermining their exposure.

1910.1044(f)(5)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1910.1044(i)(6)(i)—Following an emergency, the employer shall conduct monitoring which complies with paragraph (f) [Exposure Monitoring] of this section.

Medical Surveillance

1910.1044(i)(5)—Medical surveillance. For any employee exposed to DBCP in an emergency situation, the employer shall provide medical surveillance in accordance with paragraph (m)(6)—[Emergency Situations] of this section.

1910.1044(m)(1)(i)—The employer shall make available a medical surveillance program for employees who work in regulated areas and employees who are subjected to DBCP exposures in an emergency situation. [Reference paragraph (m) for specific information.]

1910.1044(m)(2)—Frequency and content. At the time of initial assignment, and annually thereafter, the employer shall provide a medical examination for employees who work in regulated areas.

1910.1044(m)(4)—Information provided to the physician. The employer shall provide the following information to the examining physician. [Reference paragraph (m)(4) for specific information.]

1910.1044(m)(5)(i)—For each examination under this section, the employer shall obtain and provide the employee with a written opinion from the examining physician.

1910.1044(m)(6)—Emergency situations. If the employee is exposed to DBCP in an emergency situation, the employer shall provide the employee with a sperm count test as soon as practicable, or, if the employee has been vasectomy or is
unlabeled to produce a semen specimen, the hormone tests contained in paragraph (m)(2)(iii) [Medical Surveillance] of this section. The employer shall provide these same tests three months later.

Qualified Person

1910.1044(m)(4)—Information provided to the physician. The employer shall provide the following information to the examining physician. [Reference paragraph (m)(4) for specific information.]

1910.1044(m)(5)(i)—For each examination under this section, the employer shall obtain and provide the employee with a written opinion from the examining physician.

1910.1044(m)(5)(ii)—The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

Signs, Markings and Tags

1910.1044(e)(1)—The employer shall establish, within each place of employment, regulated areas wherever DBCP concentrations are in excess of the permissible exposure limit.

1910.1044(o)(1)(i)—The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to or in combination with, signs and labels required by this paragraph.

1910.1044(o)(3)(i)—The employer shall assure that precautionary labels are affixed to all containers of DBCP and of products containing DBCP in the workplace, and that the labels remain affixed when the DBCP or products containing DBCP are sold, distributed, or otherwise leave the employer’s workplace. Where DBCP or products containing DBCP are sold, distributed or otherwise leave the employer’s workplace bearing appropriate labels required by EPA under the regulations in 40 CFR Part 162, the labels required by this paragraph (o)(3) need not be affixed.

1926.1145—ACRYLONITRILE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.1045 [Acrylonitrile] of this chapter.

1910.1045—ACRYLONITRILE

Scope/Application: This section applies to occupational exposure to acrylonitrile.

Exception: This standard does not apply to exposures which result solely from the processing, use, and handling of the following materials: ABS resins, SAN resins, nitrile barrier resins, solid nitrile elastomers, and acrylic and modacrylic fibers, when these listed materials are in the form of finished polymers, and products fabricated from such finished polymers; materials made from and/or containing AN for which objective data is reasonably relied upon to demonstrate that the material is not capable of releasing AN in airborne concentrations in excess of 1 ppm as an eight (8)-hour time-weighted average, under the expected conditions of processing, use, and handling which will cause the greatest possible release; and solid materials made from and/or containing AN which will not be heated above 170 °F during handling, use, or processing.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—work controls, compliance program, respirator program, action plan, medical surveillance program, training program
- Inspections and Tests—signs cleaned
- Recordkeeping—retention requirements, records
- Training and Communications—training program, initial and annual training
- Exposure Monitoring—initially, every 6 months, and quarterly monitoring, posted results
- Medical Surveillance—program, initial, annual, termination and “other” examinations
- Qualified Person—physician
- Signs, Markings and Tags—posted signs, labels
1910.1045(g)(1)(i)—By November 2, 1980, the employer shall institute engineering and work practice controls to reduce and maintain employee exposures to AN, to or below the permissible exposure limits, except to the extent that the employer establishes that such controls are not feasible.

1910.1045(g)(2)(i)—The employer shall establish and implement a written program to reduce employee exposures to or below the permissible exposure limits solely by means of engineering and work practice controls, as required by paragraph (g)(1) [Engineering and Work Practice Controls] of this section. [Reference paragraph (g) for specific information.]

1910.1045(g)(2)(v)—The plans required by this paragraph must be revised and updated at least annually to reflect the current status of the program.

1910.1045(h)(2)(i)—The employer must implement a respiratory protection program in accordance with Sec. 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1045(i)(1)(i)—A written plan for emergency situations shall be developed for each workplace where liquid AN is present. Appropriate portions of the plan shall be implemented in the event of an emergency.

1910.1045(n)(1)(i)—The employer shall institute a program of medical surveillance for each employee who is or will be exposed to AN at or above the action level, without regard to the use of respirators. The employer shall provide each such employee with an opportunity for medical examinations and tests in accordance with this paragraph. [Reference paragraph (n)(1) for specific information.]

1910.1045(o)(1)(i)—The employer shall train each employee exposed to AN above the action level, each employee whose exposures are maintain below the action level by engineering and work practice controls, and each employee subject to potential skin or eye contact with liquid AN in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program. Reference paragraph (o)(1)(i) for specific information.

1910.1045(p)(1)(i)—Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for AN and AN-based materials not exempted under paragraph (a)(2) of this section.

1910.1045(p)(1)(iii)—Employers shall include AN and AN-based materials in the hazard communication program established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to labels on containers of AN and AN-based materials and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (o) [Employee Information and Training] of this section.

1910.1045(q)(1)(i)—Where the processing, use, and handling of materials made from or containing AN are exempted pursuant to paragraph (a)(2)(ii) [Scope] of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

1910.1045(q)(1)(iii)—The employer shall maintain this record for the duration of the employer’s reliance upon such objective data.

1910.1045(q)(2)(i)—The employer shall establish and maintain an accurate record of all monitoring required by paragraph (e) [Exposure Monitoring] of this section.
The employer shall maintain this record for at least forty (40) years, or for the duration of employment plus twenty (20) years, whichever is longer.

The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (n) [Medical Surveillance] of this section.

The employer shall assure that this record be maintained for at least forty (40) years, or for the duration of employment plus twenty (20) years, whichever is longer.

Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintain by this section for the prescribed period.

The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

The employer shall inform any person who launders or cleans protective clothing or equipment of the potentially harmful effects of exposure to AN.

Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (n)(5) for information.]

The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure to AN.

The employer shall provide a materials of the written opinion to the affected employee.

The employer shall train each employee exposed to AN above the action level, each employee whose exposures are maintained below the action level by engineering and work practice controls, and each employee subject to potential skin or eye contact with liquid AN in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program. [Reference paragraph (o)(1)(ii) for specific information.]

Training shall be provided at the time of initial assignment, or upon institution of the training program, and at least annually thereafter.

Employers shall include AN and AN-based materials in the hazard communication program established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to labels on containers of AN and AN-based materials and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (o) [Employee Information and Training] of this section.

Exposure Monitoring

Initial monitoring. Each employer who has a place of employment in which AN is present shall monitor each such workplace and work operation to accurately determine the airborne concentrations of AN to which employees may be exposed.

If the monitoring required by this section reveals employee exposure to be at or above the action level but at or below the permissible exposure limits, the employer must repeat such monitoring for each such employee at least every 6 months. The employer must continue these measurements every 6 months until at least two consecutive
measurements taken at least seven (7) days apart, are below the action level, and thereafter the employer may discontinue monitoring for that employee.

1910.1045(e)(3)(iii)—If the monitoring required by this section reveals employee exposure to be in excess of the permissible exposure limits, the employer must repeat these determinations for each such employee at least quarterly. The employer must continue these quarterly measurements until at least two consecutive measurements, taken at least seven (7) days apart, are at or below the permissible exposure limits, and thereafter the employer must monitor at least every 6 months.

1910.1045(e)(4)—Additional monitoring. Whenever there has been a production, process, control, or personnel change which may result in new or additional exposures to AN, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to AN, additional monitoring which complies with this paragraph shall be conducted.

1910.1045(e)(5)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Medical Surveillance

1910.1045(n)(1)(i)—The employer shall institute a program of medical surveillance for each employee who is or will be exposed to AN at or above the action level, without regard to the use of respirators. The employer shall provide each such employee with an opportunity for medical examinations and tests in accordance with this paragraph. [Reference paragraph (n) for specific information.]

1910.1045(n)(2)—Initial examinations. At the time of initial assignment, or upon institution of the medical surveillance program, the employer shall provide each affected employee an opportunity for a medical examination.

1910.1045(n)(3)(i)—The employer shall provide the examinations specified in paragraph (n)(2) [Initial Examinations] of this section at least annually for all employees specified in paragraph (n)(1) [Medical Surveillance] of this section.

1910.1045(n)(3)(ii)—If an employee has not had the examination specified in paragraph (n)(2) [Initial Examinations] of this section within 6 months preceding termination of employment, the employer shall make such examination available to the employee prior to such termination.

1910.1045(n)(4)—Additional examinations. If the employee for any reason develops signs or symptoms which may be associated with exposure to AN, the employer shall provide an appropriate examination and emergency medical treatment.

1910.1045(n)(5)—Information provided to the physician. The employer shall provide information to the examining physician. [Reference paragraph (n)(5) for information.]

1910.1045(n)(6)(i)—The employer shall obtain a written opinion from the examining physician.

1910.1045(n)(6)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

Qualified Person

1910.1045(n)(5)—Information provided to the physician. The employer shall provide information to the examining physician.

1910.1045(n)(6)(iii)—The employer shall provide a copy of the written opinion to the affected employee.

1910.1045(n)(6)(ii)—The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure to AN.
Signs, Markings and Tags

1910.1045(f)(2)—Regulated areas shall be demarcated and segregated from the rest of the workplace, in any manner that minimizes the number of persons who will be exposed to AN.

1910.1045(h)(2)(ii)(B)—A label must be attached to the cartridge or canister to indicate the date and time at which it is first installed on the respirator.

1910.1045(p)(1)(iii)—Employers shall include AN and AN-based materials in the hazard communication program established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to labels on containers of AN and AN-based materials and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (o) [Employee Information and Training] of this section.

1910.1045(p)(2)(i)—The employer shall post signs to clearly indicate all workplaces where AN concentrations exceed the permissible exposure limits. [Reference paragraph (p)(2)(i) for specific information.]

1910.1045(p)(3)(i)—The employer shall ensure that precautionary labels are in compliance with paragraph (p)(1)(i) [Hazard Communication] of this section and are affixed to all containers of liquid AN and AN-based materials not exempted under paragraph (a)(2) of this section. The employer shall ensure that the labels remain affixed when the materials are sold, distributed, or otherwise leave the employer’s workplace.

1926.1147—ETHYLENE OXIDE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at § 1910.1047 [Ethylene Oxide] of this chapter.

1910.1047—ETHYLENE OXIDE

Scope/Application: This section applies to occupational exposure to ethylene oxide.

Exception: This standard does not apply to the processing, use, or handling of products containing EtO where objective data are reasonably relied upon that demonstrate that the product is not capable of releasing EtO in airborne concentrations at or above the action level, and may not reasonably be foreseen to release EtO in excess of the excursion limit, under the expected conditions of processing, use, or handling that will cause the greatest possible release.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, SDS
• Recordkeeping—retention requirements, records
• Training and Communications—initial and annual training, training program, hazard communication program
• Exposure Monitoring—determination, monitoring, posted results
• Medical Surveillance—program, initial and annual examinations, written opinion
• Qualified Person—physician
• Signs, Markings and Tags—regulated areas, labels

Programs, Policies and Procedures

1910.1047(f)(1)(i)—The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the TWA and to or below the excursion limit, except to the extent that such controls are not feasible.

1910.1047(f)(2)(i)—Where the TWA or excursion limit is exceeded, the employer shall establish and implement a written program to reduce employee exposure to or below the TWA and to or below the excursion limit by means of engineering and work practice controls, as required by paragraph (f)(1) [Engineering and Work Practice Controls] of this section, and by the use of respiratory protection where required or permitted under this section.
Written plans for a program required in paragraph (f)(2) [Compliance Program] shall be developed and furnished upon request for examination and copying to the Assistant Secretary, the Director, affected employees and designated employee representatives. Such plans shall be reviewed at least every 12 months, and shall be updated as necessary to reflect significant changes in the status of the employer’s compliance program.

Respirator program. The employer must implement a respiratory protection program in accordance with 1910.134 [Respiratory Protection] (b) through (d) (except (d)(i)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

A written plan for emergency situations shall be developed for each workplace where there is a possibility of an emergency. Appropriate portions of the plan shall be implemented in the event of an emergency.


The employer shall institute a medical surveillance program for all employees who are or may be exposed to EtO at or above the action level, without regard to the use of respirators, for at least 30 days a year.

Safety data sheets. Employers who are manufacturers or importers of EtO shall comply with the requirements regarding development of safety data sheets as specified in 29 CFR 1910.1200(g) of OSHA’s Hazard Communication standard.

Recordkeeping

Where the employer can document that exposure levels are equivalent for similar operations in different work shifts, the employer need only determine representative employee exposure for that operation during one shift.

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Written plans for a program required in paragraph (f)(2) [Compliance Program] shall be developed and furnished upon request for examination and copying to the Assistant Secretary, the Director, affected employees and designated employee representatives. Such plans shall be reviewed at least every 12 months, and shall be updated as necessary to reflect significant changes in the status of the employer’s compliance program.

A written plan for emergency situations shall be developed for each workplace where there is a possibility of an emergency. Appropriate portions of the plan shall be implemented in the event of an emergency.

Information provided to the physician. The employer shall provide information to the examining physician as specified in the standard. [Reference paragraph (j)(3)(ii) for specific.]

The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination. [Reference paragraph (i)(4)(i) for specifics.]

The employer shall provide a copy of the physician’s written opinion to the affected employee within 15 days from its receipt.

Safety data sheets. Employers who are manufacturers or importers of EtO shall comply with the requirements regarding development of safety data sheets as specified in 29 CFR 1910.1200(g) of OSHA’s Hazard Communication standard.

Where the processing, use, or handling of products made from or containing EtO are exempted from other requirements of this section under paragraph (a)(2) [Scope] of this section, or where objective data have been relied on in lieu of initial monitoring under paragraph (d)(2)(ii) [Initial Monitoring] of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.
1910.1047(k)(1)(iii)—The employer shall maintain this record for the duration of the employer’s reliance upon such objective data.

1910.1047(k)(2)(i)—The employer shall keep an accurate record of all measurements taken to monitor employee exposure to EtO as prescribed in paragraph (d) [Exposure Monitoring] of this section.

1910.1047(k)(2)(iii)—The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1047(k)(3)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (i)(1)(i) [Employees Covered] of this section, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1047(k)(3)(iii)—The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1047(k)(5)—Transfer of records. The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1047(d)(7)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1910.1047(i)(2)(i)—Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (i)(1)(i) [Medical Surveillance] of this section.

1910.1047(i)(3)—Information provided to the physician. The employer shall provide information to the examining physician as specified in the standard. [Reference paragraph (j)(3)(ii) for specific.]

1910.1047(i)(4)(i)—The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination. [Reference paragraph (i)(4)i) for specifics.]

1910.1047(i)(4)(ii)—The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to EtO.

1910.1047(i)(4)(iii)—The employer shall provide a copy of the physician’s written opinion to the affected employee within 15 days from its receipt.

1910.1047(j)(3)(i)—The employer shall provide employees who are potentially exposed to EtO at or above the action level or above the excursion limit with information and training on EtO at the time of initial assignment and at least annually thereafter. [Reference paragraph (j)(3)(ii) for specific information.]

1910.1047(j)(3)(iii)(D)—The details of the hazard communication program developed by the employer, including an explanation of the labeling system and how employees can obtain and use the appropriate hazard information.

Exposure Monitoring

1910.1047(d)(1)(i)—Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 15-minute short-term exposures of each employee.

1910.1047(d)(1)(iii)—Where the employer can document that exposure levels are equivalent for similar operations in different work shifts, the employer need only determine representative employee exposure for that operation during one shift.
1910.1047(d)(2)(i)—Each employer who has a workplace or work operation covered by this standard, except as provided for in paragraph (a)(2) [Scope] or (d)(2)(ii) [Initial Monitoring] of this section, shall perform initial monitoring to determine accurately the airborne concentrations of EtO to which employees may be exposed.

1910.1047(d)(3)(i)—If the monitoring required by paragraph (d)(2) [Initial Monitoring] of this section reveals employee exposure at or above the action level but at or below the 8-hour TWA, the employer shall repeat such monitoring for each such employee at least every 6 months.

1910.1047(d)(3)(ii)—If the monitoring required by paragraph (d)(2)(i) [Initial Monitoring] of this section reveals employee exposure above the 8-hour TWA, the employer shall repeat such monitoring for each such employee at least every 3 months.

1910.1047(d)(3)(iii)—The employer may alter the monitoring schedule from quarterly to semiannually for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee’s exposure has decreased to or below the 8-hour TWA.

1910.1047(d)(3)(iv)—If the monitoring required by paragraph (d)(2)(i) [Initial Monitoring] of this section reveals employee exposure above the 15 minute excursion limit, the employer shall repeat such monitoring for each such employee at least every 3 months, and more often as necessary to evaluate exposure the employee’s short-term exposures.

1910.1047(d)(5)—Additional monitoring. Notwithstanding the provisions of paragraph (d)(4) [Termination of Monitoring] of this section, the employer shall institute the exposure monitoring required under paragraphs (d)(2)(i) [Initial Monitoring] and (d)(3) [Monitoring Frequency] of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures to EtO or when the employer has any reason to suspect that a change may result in new or additional exposures.

1910.1047(d)(7)(i)—The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

Medical Surveillance

1910.1047(i)(1)(i)(A)—The employer shall institute a medical surveillance program for all employees who are or may be exposed to EtO at or above the action level, without regard to the use of respirators, for at least 30 days a year.

1910.1047(i)(2)(i)—Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (i)(1)(i) [Medical Surveillance] of this section on the following schedules:

1910.1047(i)(2)(i)(A)—Prior to assignment of the employee to an area where exposure may be at or above the action level for at least 30 days a year.

1910.1047(i)(2)(i)(B)—At least annually each employee exposed at or above the action level for at least 30 days in the past year.

1910.1047(i)(2)(i)(C)—At termination of employment or reassignment to an area where exposure to EtO is not at or above the action level for at least 30 days a year.

1910.1047(i)(2)(i)(D)—As medically appropriate for any employee exposed during an emergency.

1910.1047(i)(2)(i)(E)—As soon as possible, upon notification by an employee either (1) that the employee has developed signs or symptoms indicating possible overexposure to EtO, or (2) that the employee desires medical advice concerning the effects of current or past exposure to EtO on the employee’s ability to produce a healthy child.

1910.1047(i)(2)(i)(F)—If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies recommended by the physician.
1910.1047(i)(3)—**Information** provided to the physician. The employer shall provide **information** to the examining physician as specified in the standard. [Reference paragraph (j)(3)(ii) for specific.]

1910.1047(i)(4)(i)—The employer **shall obtain a written opinion** from the examining physician. This **written opinion** shall contain the **results** of the medical examination. [Reference paragraph (i)(4)i) for specifics.]

1910.1047(i)(4)(iii)—The employer **shall provide a copy** of the physician’s **written opinion** to the affected employee within 15 days from its **receipt**.

**Qualified Person**

1910.1047(i)(2)(i)(F)—If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies recommended by the physician.

1910.1047(i)(3)—**Information** provided to the physician. The employer shall provide **information** to the examining physician as specified in the standard. [Reference paragraph (j)(3)(ii) for specific.]

1910.1047(i)(4)(i)—The employer **shall obtain a written opinion** from the examining physician. This **written opinion** shall contain the results of the medical examination. [Reference paragraph (i)(4)i) for specifics.]

1910.1047(i)(4)(iii)—The employer **shall provide a copy** of the physician’s **written opinion** to the affected employee within 15 days from its **receipt**.

**Signs, Markings and Tags**

1910.1047(e)(1)—The employer **shall establish a regulated area** wherever occupational exposures to airborne concentrations of EtO may exceed the TWA or wherever the EtO concentration exceeds or can reasonably be expected to exceed the excursion limit.

1910.1047(e)(3)—Regulated areas shall be **demarcated** in any manner that minimizes the number of employees within the regulated area.

1910.1047(j)(1)(i)—The employer **shall post and maintain legible signs demarcating** regulated areas and entrances or accessways to regulated areas.

1910.1047(j)(1)(ii)—The employer **shall ensure that precautionary labels** are **affixed** to all containers of EtO whose contents are capable of causing employee exposure at or above the action level or whose contents may reasonably be foreseen to cause employee exposure above the excursion limit, and that the **labels** remain affixed when the containers of EtO leave the workplace. For the purposes of this paragraph, reaction vessels, storage tanks, and pipes or piping systems are not considered to be containers. The **labels** shall comply with the requirements of 29 CFR 1910.1200(f) of OSHA’s Hazard Communication standard.

**1926.1148—FORMALDEHYDE**

**Scope/Application:** The requirements applicable to construction work under this section are identical to those set forth at § 1910.1048 [Formaldehyde] of this chapter.

**1910.1048—FORMALDEHYDE**

**Scope/Application:** This section applies to occupational exposure to formaldehyde, its solutions, and materials that release formaldehyde.

**STANDARD HIGHLIGHTS**
- Programs, Policies and Procedures—work controls, respirator program, housekeeping program, medical surveillance program, hazard communication program, training program, preventive maintenance
- Inspections and Tests—pulmonary function tests
• Recordkeeping—retention requirements
• Training and Communications—training program, initial and annual training
• Exposure Monitoring—periodic monitoring, posted results
• Medical Surveillance—questionnaires, initial and annual examinations
• Qualified Person—physician
• Signs, Markings and Tags—regulated areas, posted signs, labels

Programs, Policies and Procedures

1910.1048(f)(1)—Engineering controls and work practices. The employer shall institute engineering and work practice controls to reduce and maintain employee exposures to formaldehyde at or below the TWA and the STEL.

1910.1048(g)(2)(i)—The employer must implement a respiratory protection program in accordance with § 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1048(g)(2)(ii)(A)—Replace the cartridge after three (3) hours of use or at the end of the workshift, whichever occurs first, unless the cartridge contains a NIOSH-approved end-of-service-life indicator (ESLI) to show when breakthrough occurs.

1910.1048(g)(2)(ii)(B)—Unless the canister contains a NIOSH-approved ESLI to show when breakthrough occurs, replace canisters used in atmospheres up to 7.5 ppm (10xPEL) every four (4) hours and industrial-sized canisters used in atmospheres up to 75 ppm (100xPEL) every two (2) hours, or at the end of the workshift, whichever occurs first.

1910.1048(h)(2)(vi)—The employer shall inform any person who launders, cleans, or repairs such clothing or equipment of formaldehyde’s potentially harmful effects and of procedures to safely handle the clothing and equipment.

1910.1048(l)(4)(ii)—Laboratory examinations for respirator wearers consisting of baseline and annual pulmonary function tests. As a minimum, these tests shall consist of forced vital capacity (FVC), forced expiratory volume in one second (FEV1), and forced expiratory flow (FEF).

1910.1048(j)—Housekeeping. For operations involving formaldehyde liquids or gas, the employer shall conduct a program to detect leaks and spills, including regular visual inspections.

1910.1048(j)(1)—Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.

1910.1048(k)—Emergencies. For each workplace where there is the possibility of an emergency involving formaldehyde, the employer shall assure appropriate procedures are adopted to minimize injury and loss of life. Appropriate procedures shall be implemented in the event of an emergency.

1910.1048(l)(1)(i)—The employer shall institute medical surveillance programs for all employees exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL. [Reference paragraph (l) for specific information.]

1910.1048(m)(1)(i)—Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for formaldehyde.

1910.1048(m)(1)(iii)—Employers shall include formaldehyde in the hazard communication program established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (n) [Employee Information and Training] of this section.

1910.1048(m)(4)(i)—Any employer who uses formaldehyde-containing materials listed in paragraph (m)(1)(i) [Hazard Communication] shall comply with the requirements of 29 CFR 1910.1200(g) [Safety Data Sheets] with regard to the development and updating of safety data sheets.
1910.1048(m)(4)(ii)—Manufacturers, importers, and distributors of formaldehyde-containing materials listed in paragraph (m)(1)(i) [Hazard Communication] shall assure that safety data sheets and updated information are provided to all employers purchasing such materials at the time of the initial shipment and at the time of the first shipment after a safety data sheet is updated.

1910.1048(m)(5)—Written hazard communication program. The employer shall develop, implement, and maintain at the workplace, a written hazard communication program for formaldehyde exposures in the workplace, which at a minimum describes how the requirements specified in this paragraph for labels and other forms of warning and safety data sheets, and paragraph (n) [Employee Information and Training] for employee information and training, will be met. Employers in multi-employer workplaces shall comply with the requirements of 29 CFR 1910.1200(e)(2) [Hazard Communication].

1910.1048(n)(1)—Participation. The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde participate in a training program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training. [Reference paragraph (n)(3) for specific information.]

Inspections and Tests

1910.1048(j)—Housekeeping. For operations involving formaldehyde liquids or gas, the employer shall conduct a program to detect leaks and spills, including regular visual inspections.

1910.1048(j)(1)—Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.

Recordkeeping

1910.1048(d)(1)(iv)—Representative samples for each job classification in each work area shall be taken for each shift unless the employer can document with objective data that exposure levels for a given job classification are equivalent for different work shifts.

1910.1048(d)(6)—Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. If employee exposure is above the PEL, affected employees shall be provided with a description of the corrective actions being taken by the employer to decrease exposure.

1910.1048(l)(3)(i)—Administration of a medical disease questionnaire, such as in Appendix D, which is designed to elicit information on work history, smoking history, any evidence of eye, nose, or throat irritation; chronic airway problems or hyperreactive airway disease; allergic skin conditions or dermatitis; and upper or lower respiratory problems.

1910.1048(l)(6)—Information provided to the physician. The employer shall provide information to the examining physician (specifically listed in standard). [Reference paragraph (l)(6) for specific information.]

1910.1048(l)(7)(i)—For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde.

1910.1048(l)(7)(ii)—The employer shall provide for retention of the results of the medical examination and tests conducted by the physician.

1910.1048(l)(7)(iii)—The employer shall provide a copy of the physician’s written opinion to the affected employee within 15 days of its receipt.

1910.1048(m)(1)(iii)—Employers shall include formaldehyde in the hazard communication program established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (n) [Employee Information and Training] of this section.
As a minimum, for all materials listed in paragraph (m)(1)(i) and (iv) of this section capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm, labels shall identify that the product contains formaldehyde; list the name and address of the responsible party; and state that physical and health hazard information is readily available from the employer and from safety data sheets.

Any employer who uses formaldehyde-containing materials listed in paragraph (m)(1)(i) shall comply with the requirements of 29 CFR 1910.1200(g) with regard to the development and updating of safety data sheets.

Written hazard communication program. The employer shall develop, implement, and maintain at the workplace, a written hazard communication program for formaldehyde exposures in the workplace, which at a minimum describes how the requirements specified in this paragraph for labels and other forms of warning and safety data sheets, and paragraph (n) for employee information and training, will be met. Employers in multi-employer workplaces shall comply with the requirements of 29 CFR 1910.1200(e)(2).

Exposure measurements. The employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to formaldehyde.

Exposure determinations. Where the employer has determined that no monitoring is required under this standard, the employer shall maintain a record of the objective data relied upon to support the determination that no employee is exposed to formaldehyde at or above the action level.

Medical surveillance. The employer shall establish and maintain an accurate record for each employee subject to medical surveillance under this standard.

The employer shall establish and maintain accurate records for employees subject to negative pressure respirator fit testing required by this standard.

Record retention. The employer shall retain records required by this standard for at least the following periods:

- Exposure records and determinations shall be kept for at least 30 years.
- Medical records shall be kept for the duration of employment plus 30 years.
- Respirator fit testing records shall be kept until replaced by a more recent record.

Training and Communications

An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to other employers with work operations at that worksite.

The employer shall assure that only persons trained to recognize the hazards of formaldehyde remove the contaminated material from the storage area for purposes of cleaning, laundering, or disposal.

The employer shall inform any person who launders, cleans, or repairs such clothing or equipment of formaldehyde’s potentially harmful effects and of procedures to safely handle the clothing and equipment.

Information provided to the physician. The employer shall provide information to the examining physician (specifically listed in standard). [Reference paragraph (l)(6) for specific information.]

For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde.
1910.1048(m)(1)(iii)—Employers shall include formaldehyde in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (n) of this section.

1910.1048(m)(2)—Manufacturers and importers who produce or import formaldehyde or formaldehyde-containing products shall provide downstream employers using or handling these products with an objective determination through the required labels and SDSs if these items may constitute a health hazard within the meaning of 29 CFR 1910.1200(d) [Hazard Determination] under normal conditions of use.

1910.1048(n)(1)—Participation. The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde participate in a training program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training. [Reference paragraph (n)(3) for specific information.]

1910.1048(n)(2)—Frequency. Employers shall provide such information and training to employees at the time of initial assignment, and whenever a new exposure to formaldehyde is introduced into the work area. The training shall be repeated at least annually.

Exposure Monitoring

1910.1048(d)(1)(i)—Each employer who has a workplace covered by this standard shall monitor employees to determine their exposure to formaldehyde.

1910.1048(d)(1)(iv)—Representative samples for each job classification in each work area shall be taken for each shift unless the employer can document with objective data that exposure levels for a given job classification are equivalent for different work shifts.

1910.1048(d)(2)(i)—Unless the employer chooses to measure the exposure of each employee potentially exposed to formaldehyde, the employer shall develop a representative sampling strategy and measure sufficient exposures within each job classification for each workshift to correctly characterize and not underestimate the exposure of any employee within each exposure group.

1910.1048(d)(2)(ii)—The initial monitoring process shall be repeated each time there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposure to formaldehyde.

1910.1048(d)(2)(iii)—If the employer receives reports of signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure, the employer shall promptly monitor the affected employee’s exposure.

1910.1048(d)(3)(i)—The employer shall periodically measure and accurately determine exposure to formaldehyde for employees shown by the initial monitoring to be exposed at or above the action level or at or above the STEL.

1910.1048(d)(3)(ii)—If the last monitoring results reveal employee exposure at or above the action level, the employer shall repeat monitoring of the employees at least every 6 months.

1910.1048(d)(3)(iii)—If the last monitoring results reveal employee exposure at or above the STEL, the employer shall repeat monitoring of the employees at least once a year under worst conditions.

1910.1048(d)(6)—Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. If employee exposure is above the PEL, affected employees shall be provided with a description of the corrective actions being taken by the employer to decrease exposure.
Medical Surveillance

1910.1048(l)(1)(i)—The employer shall institute medical surveillance programs for all employees exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL. [Reference paragraph (l) for specific information.]

1910.1048(l)(3)—Medical disease questionnaire. The employer shall make the following medical surveillance available to employees prior to assignment to a job where formaldehyde exposure is at or above the action level or above the STEL and annually thereafter. The employer shall also make the following medical surveillance available promptly upon determining that an employee is experiencing signs and symptoms indicative of possible overexposure to formaldehyde.

1910.1048(l)(3)(i)—Administration of a medical disease questionnaire, such as in Appendix D, which is designed to elicit information on work history, smoking history, any evidence of eye, nose, or throat irritation; chronic airway problems or hyperreactive airway disease: allergic skin conditions or dermatitis; and upper or lower respiratory problems.

1910.1048(l)(3)(ii)—A determination by the physician, based on evaluation of the medical disease questionnaire, of whether a medical examination is necessary for employees not required to wear respirators to reduce exposure to formaldehyde.

1910.1048(l)(4)—Medical examinations. Medical examinations shall be given to any employee who the physician feels, based on information in the medical disease questionnaire, may be at increased risk from exposure to formaldehyde and at the time of initial assignment and at least annually thereafter to all employees required to wear a respirator to reduce exposure to formaldehyde.

1910.1048(l)(5)—Examinations for employees exposed in an emergency. The employer shall make medical examinations available as soon as possible to all employees who have been exposed to formaldehyde in an emergency.

1910.1048(l)(6)—Information provided to the physician. The employer shall provide information to the examining physician (specifically listed in standard). [Reference paragraph (l)(6) for specific information.]

1910.1048(l)(7)(i)—For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde.

1910.1048(l)(9)(ii)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction.

1910.1048(l)(9)(iii)—The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the notification of the right to seek a second medical opinion, or receipt of the initial physician’s written opinion, whichever is later.

Qualified Person

1910.1048(l)(4)—Medical examinations. Medical examinations shall be given to any employee who the physician feels, based on information in the medical disease questionnaire, may be at increased risk from exposure to formaldehyde and at the time of initial assignment and at least annually thereafter to all employees required to wear a respirator to reduce exposure to formaldehyde.

1910.1048(l)(6)—Information provided to the physician. The employer shall provide information to the examining physician (specifically listed in standard). [Reference paragraph (l)(6) for specific information.]

1910.1048(l)(7)(i)—For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde.
1910.1048(l)(9)(ii)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction.

1910.1048(l)(9)(iii)—The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the notification of the right to seek a second medical opinion, or receipt of the initial physician’s written opinion, whichever is later.

Signs, Markings and Tags

1910.1048(e)(1)—The employer shall establish regulated areas where the concentration of airborne formaldehyde exceeds either the TWA or the STEL and post all entrances and accessways with signs.

1910.1048(e)(1)(i)—The employer shall establish regulated areas where the concentration of airborne formaldehyde exceeds either the TWA or the STEL and post all entrances and accessways with signs. [Reference paragraph (e)(1)(i) for specific information.]

1910.1048(h)(2)(ii)—When ventilating formaldehyde-contaminated clothing and equipment, the employer shall establish a storage area so that employee exposure is minimized. Containers for contaminated clothing and equipment and storage areas shall have labels and signs.

1910.1048(h)(2)(ii)(A)—Signs. Storage areas for contaminated clothing and equipment shall have signs bearing a legend. [Reference paragraph (h)(2)(ii)(A) for specific information.]

1910.1048(h)(2)(ii)(B)—Labels. The employer shall ensure containers for contaminated clothing and equipment are labeled consistent with the Hazard Communication Standard, Sec. 1910.1200. [Reference paragraph (h)(2)(ii)(B) for specific information.]

1910.1048(m)(2)(i)—In addition to the requirements in paragraphs (m)(1) through (m)(1)(iv) of this section, for materials listed in paragraph (m)(1)(iv) capable of releasing formaldehyde at levels above 0.5 ppm, labels shall appropriately address all hazards as defined in paragraph (d) of § 1910.1200 and Appendices A and B to § 1910.1200, including cancer and respiratory sensitization, and shall contain the hazard statement “May Cause Cancer.”

1910.1048(m)(2)(ii)—As a minimum, for all materials listed in paragraph (m)(1)(i) and (iv) of this section capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm, labels shall identify that the product contains formaldehyde; list the name and address of the responsible party; and state that physical and health hazard information is readily available from the employer and from safety data sheets.

1910.1048(m)(3)(i)—The employer shall assure that hazard warning labels complying with the requirements of 29 CFR 1910.1200(f) [Labels and Other Forms of Warning] are affixed to all containers of materials listed in paragraph (m)(1)(i) [Hazard Communication], except to the extent that 29 CFR 1910.1200(f) [Labels and Other Forms of Warning] is inconsistent with this paragraph.

1926.1152—METHYLENE CHLORIDE

Scope/Application: The requirements applicable to construction work under this section are identical to those set forth at 29 CFR 1910.1052 [Methylene Chloride] of this chapter.

1910.1052—METHYLENE CHLORIDE

Scope/Application: This section applies to occupational exposure to methylene chloride.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—work controls, respirator program, action plan, hazard communications program
- Recordkeeping—retention requirements, records
Programs, Policies and Procedures

1910.1052(f)(1)—Engineering and work practice controls. The employer shall institute and maintain the effectiveness of engineering controls and work practices to reduce employee exposure to or below the PELs except to the extent that the employer can demonstrate that such controls are not feasible. Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the 8-TWA PEL or STEL, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (g) [Respiratory Protection] of this section.

1910.1052(f)(3)(i)—The employer shall implement procedures to detect leaks of MC in the workplace. In work areas where spills may occur, the employer shall make provisions to contain any spills and to safely dispose of any MC-contaminated waste materials.

1910.1052(g)(2)(i)—The employer must implement a respiratory protection program in accordance with 1910.134 (b) through (m) (except (d)(1)(iii)), which covers each employee required by this section to use a respirator.

1910.1052(g)(4)—Medical evaluation. Before having an employee use a supplied-air respirator in the negative-pressure mode, or a gas mask with an organic-vapor canister for emergency escape, the employer must:

1910.1052(g)(4)(i)—Have a physician or other licensed health-care professional (PLHCP) evaluate the employee’s ability to use such respiratory protection.

1910.1052(l)(6)—Whenever there are workplace changes, such as modifications of tasks or procedures or the institution of new tasks or procedures, which increase employee exposure, and where those exposures exceed or can reasonably be expected to exceed the action level, the employer shall update the training as necessary to ensure that each affected employee has the requisite proficiency.

Recordkeeping

1910.1052(d)(2)(i)—Where objective data demonstrate that MC cannot be released in the workplace in airborne concentrations at or above the action level or above the STEL. The objective data shall represent the highest MC exposures likely to occur under reasonably foreseeable conditions of processing, use, or handling. The employer shall document the objective data exemption as specified in paragraph (m) [Recordkeeping] of this section.

1910.1052(g)(4)(ii)—Ensure that the PLHCP provides their findings in a written opinion to the employee and the employer.

1910.1052(j)(8)—Information provided to the physician or other licensed health care professional. The employer shall provide information (specified in the standard) to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects. [Reference paragraph (j) for specific information.]

1910.1052(j)(9)(i)—For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The written medical opinion shall be limited to specific information. [Reference paragraph (j)(9) for specific information.]

1910.1052(j)(9)(ii)—The employer shall instruct the physician or other licensed health care professional not to reveal to the employer, orally or in the written opinion, any specific records, findings, and diagnoses that have no bearing on occupational exposure to MC.
1910.1052(m)(1)(i)—Where an employer seeks to demonstrate that initial monitoring is unnecessary through reasonable reliance on objective data showing that any materials in the workplace containing MC will not release MC at levels which exceed the action level or the STEL under foreseeable conditions of exposure, the employer shall establish and maintain an accurate record of the objective data relied upon in support of the exemption.

1910.1052(m)(1)(iii)—The employer shall maintain this record for the duration of the employer’s reliance upon such objective data.

1910.1052(m)(2)(i)—The employer shall establish and keep an accurate record of all measurements taken to monitor employee exposure to MC as prescribed in paragraph (d) [Exposure Monitoring] of this section.

1910.1052(m)(2)(iv)—The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

1910.1052(m)(3)(i)—The employer shall establish and maintain an accurate record for each employee subject to medical surveillance under paragraph (j) [Medical Surveillance] of this section.

1910.1052(m)(3)(iii)—The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

1910.1052(m)(5)—Transfer of records. The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1052(e)(7)—An employer at a multi-employer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to all other employers with work operations at that worksite.

1910.1052(f)(3)(ii)—The employer shall ensure that all incidental leaks are repaired and that incidental spills are cleaned promptly by employees who use the appropriate personal protective equipment and are trained in proper methods of cleanup.

1910.1052(g)(4)(ii)—Ensure that the PLHCP provides their findings in a written opinion to the employee and the employer.

1910.1052(j)(8)—Information provided to the physician or other licensed health care professional. The employer shall provide information (specified in the standard) to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects. [Reference paragraph (j) for specific information.]

1910.1052(j)(9)(i)—For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The written medical opinion shall be limited to specific information. [Reference paragraph (j)(9) for specific information.]

1910.1052(j)(9)(ii)—The employer shall instruct the physician or other licensed health care professional not to reveal to the employer, orally or in the written opinion, any specific records, findings, and diagnoses that have no bearing on occupational exposure to MC.

1910.1052(l)(1)—The employer shall provide information and training for each affected employee prior to or at the time of initial assignment to a job involving potential exposure to MC.


1910.1052(l)(5)—The employer shall re-train each affected employee as necessary to ensure that each employee exposed above the action level or the STEL maintains the requisite understanding of the principles of safe use and handling of MC in the workplace.
1910.1052(l)(6)—Whenever there are workplace changes, such as modifications of tasks or procedures or the institution of new tasks or procedures, which increase employee exposure, and where those exposures exceed or can reasonably be expected to exceed the action level, the employer shall update the training as necessary to ensure that each affected employee has the requisite proficiency.

1910.1052(l)(7)—An employer whose employees are exposed to MC at a multi-employer worksite shall notify the other employers with work operations at that site in accordance with the requirements of the Hazard Communication Standard, 29 CFR 1910.1200, 29 CFR 1915.1200, or 29 CFR 1926.59, as appropriate.

Exposure Monitoring

1910.1052(d)(2)—Initial determination. Each employer whose employees are exposed to MC shall perform initial exposure monitoring to determine each affected employee’s exposure.

1910.1052(d)(2)(i)—Where objective data demonstrate that MC cannot be released in the workplace in airborne concentrations at or above the action level or above the STEL. The objective data shall represent the highest MC exposures likely to occur under reasonably foreseeable conditions of processing, use, or handling. The employer shall document the objective data exemption as specified in paragraph (m) [Recordkeeping] of this section.

1910.1052(d)(3)—Periodic monitoring. Where the initial determination shows employee exposures at or above the action level or above the STEL, the employer shall establish an exposure monitoring program for periodic monitoring of employee exposure to MC in accordance with Table 1.

1910.1052(d)(4)(i)—The employer shall perform exposure monitoring when a change in workplace conditions indicates that employee exposure may have increased. Examples of situations that may require additional monitoring include changes in production, process, control equipment, or work practices, or a leak, rupture, or other breakdown.

1910.1052(d)(5)(i)—The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results in writing, either individually or by posting of results in an appropriate location that is accessible to affected employees.

Medical Surveillance

1910.1052(g)(4)—Medical evaluation. Before having an employee use a supplied-air respirator in the negative-pressure mode, or a gas mask with an organic-vapor canister for emergency escape, the employer must:

1910.1052(g)(4)(i)—Have a physician or other licensed health-care professional (PLHCP) evaluate the employee’s ability to use such respiratory protection.

1910.1052(j)(1)—Affected employees. The employer shall make medical surveillance available for employees who are or may be exposed to MC.

1910.1052(j)(4)(i)—Initial surveillance. The employer shall provide initial medical surveillance under the schedule provided by paragraph (m)(2)(iii) [Medical Surveillance] of this section, or before the time of initial assignment of the employee, whichever is later. The employer need not provide the initial surveillance if medical records show that an affected employee has been provided with medical surveillance that complies with this section within 12 months before April 10, 1997.

1910.1052(j)(4)(ii)—Periodic medical surveillance. The employer shall update the medical and work history for each affected employee annually. The employer shall provide periodic physical examinations, including appropriate laboratory surveillance, as follows:

1910.1052(j)(4)(ii)(A)—For employees 45 years of age or older, within 12 months of the initial surveillance or any subsequent medical surveillance.
1910.1052(j)(4)(ii)(B)—For employees younger than 45 years of age, within 36 months of the initial surveillance or any subsequent medical surveillance.

1910.1052(j)(4)(iii)—Termination of employment or reassignment. When an employee leaves the employer’s workplace, or is reassigned to an area where exposure to MC is consistently at or below the action level and STEL, medical surveillance shall be made available if six months or more have elapsed since the last medical surveillance.

1910.1052(j)(4)(iv)—Additional surveillance. The employer shall provide additional medical surveillance at frequencies other than those listed above when recommended in the written medical opinion. (For example, the physician or other licensed health care professional may determine an examination is warranted in less than 36 months for employees younger than 45 years of age based upon evaluation of the results of the annual medical and work history.)

1910.1052(j)(8)—Information provided to the physician or other licensed health care professional. The employer shall provide information (specified in the standard) to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects. [Reference paragraph (j) for specific information.]

1910.1052(j)(9)(i)—For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The written medical opinion shall be limited to specific information. [Reference paragraph (j)(9) for specific information.]

1910.1052(j)(14)(ii)—If the employee does not agree with the opinion of the employer-selected PLHCP, notifies the employer of that fact, and takes steps to make an appointment with a second PLHCP within 15 days of receiving a copy of the written opinion of the initial PLHCP, the employer shall pay for the PLHCP chosen by the employee to perform specific tests. [Reference paragraph (j)(14) for specific information.]

Qualified Person

1910.1052(j)(4)(iv)—Additional surveillance. The employer shall provide additional medical surveillance at frequencies other than those listed above when recommended in the written medical opinion. (For example, the physician or other licensed health care professional may determine an examination is warranted in less than 36 months for employees younger than 45 years of age based upon evaluation of the results of the annual medical and work history.)

1910.1052(j)(8)—Information provided to the physician or other licensed health care professional. The employer shall provide information (specified in the standard) to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects. [Reference paragraph (j) for specific information.]

1910.1052(j)(9)(i)—For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The written medical opinion shall be limited to specific information. [Reference paragraph (j)(9) for specific information.]

1910.1052(j)(14)(ii)—If the employee does not agree with the opinion of the employer-selected PLHCP, notifies the employer of that fact, and takes steps to make an appointment with a second PLHCP within 15 days of receiving a copy of the written opinion of the initial PLHCP, the employer shall pay for the PLHCP chosen by the employee to perform specific tests. [Reference paragraph (j)(14) for specific information.]

Signs, Markings and Tags

1910.1052(e)(1)—The employer shall establish a regulated area wherever an employee’s exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed either the 8-hour TWA PEL or the STEL.
1910.1052(e)(6)—The employer shall demarcate regulated areas from the rest of the workplace in any manner that adequately establishes and alerts employees to the boundaries of the area and minimizes the number of authorized employees exposed to MC within the regulated area.

1926.1153—RESPIRABLE CRYSSTALLINE SILICA

**Scope/Application:** This section applies to occupational exposure to respirable crystalline silica.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—work controls, procedures, respirator program, hazard communication program, medical surveillance program
- Inspections and Tests—inspections by competent person
- Recordkeeping—retention requirements, records
- Training and Communications—initial and annual training, instruct physician
- Exposure Monitoring—initial and periodic monitoring, posted results
- Medical Surveillance—initial and periodic examinations, written opinion, program
- Competent Person—inspections
- Qualified Person—physician

**Programs, Policies and Procedures**

1926.1153(c)(1)—For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with paragraph (d) [Alternative Exposure Control Methods] of this section.

1926.1153(d)—Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

1926.1153(d)(2)(iv)—Reassessment of exposures. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

1926.1153(d)(2)(v)—Methods of sample analysis. The employer shall ensure that all samples taken to satisfy the monitoring requirements of paragraph (d)(2) [Exposure Assessment] of this section are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in Appendix A to this section.

1926.1153(d)(3)(i)—Engineering and work practice controls. The employer shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless the employer can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection that complies with the requirements of paragraph (e) [Respiratory Protection] of this section.

1926.1153(e)(1)(ii)—For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

- 1926.1153(e)(1)(ii)(A)—Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls.
- 1926.1153(e)(1)(ii)(B)—Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

**Respiratory protection program.** Where respirator use is required by this section, the employer shall institute a *respiratory protection program* in accordance with 29 CFR 1910.134.

**Specified exposure control methods.** For the tasks listed in Table 1 in paragraph (c) of this section, if the employer fully and properly implements the *engineering controls, work practices,* and respiratory protection described in Table 1, the employer shall be considered to be in compliance with paragraph (e)(1) [Respiratory Protection] of this section and the requirements for selection of respirators in 29 CFR 1910.134(d)(1)(iii) and (d)(3) [Alternative Exposure Control Methods] with regard to exposure to respirable crystalline silica.

The employer shall establish and implement a *written exposure control plan* that contains at least the following elements:

- A description of the tasks in the workplace that involve exposure to respirable crystalline silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;
- A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

The employer shall make available medical examinations that include the procedures described in paragraph (h)(2) [Medical Surveillance] of this section (except paragraph (h)(2)(v)) at least every three years, or more frequently if recommended by the **PLHCP.**

The employer shall include respirable crystalline silica in the *program* established to comply with the hazard communication standard (HCS) (29 CFR 1910.1200). The employer shall ensure that each employee has access to *labels* on containers of crystalline silica and *safety data sheets,* and is trained in accordance with the provisions of HCS and paragraph (i)(2) [Employee Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;

The purpose and a description of the *medical surveillance program* required by paragraph (h) [Medical Surveillance] of this section.

**Inspections and Tests**

The employer shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the *written exposure control plan.**

**Recordkeeping**

The employer shall establish and implement a *written exposure control plan* that contains at least the following elements. [Reference paragraph (g)(1) for specific requirements.]

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**Recordkeeping**

The employer shall establish and implement a *written exposure control plan* that contains at least the following elements. [Reference paragraph (g)(1) for specific requirements.]
1926.1153(g)(4)—The employer shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

1926.1153(h)(4)—Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the PLHCP with the following information. [Reference paragraph (h)(4) for specific requirements.]

1926.1153(h)(5)—PLHCP’s written medical report for the employee. The employer shall ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed.

1926.1153(h)(5)(iv)—A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

1926.1153(h)(6)(i)—The employer shall obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following. [Reference paragraph (h)(6)(i) for specific requirements.]

1926.1153(h)(6)(ii)(B)—A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

1926.1153(h)(7)(i)—If the PLHCP’s written medical opinion indicates that an employee should be examined by a specialist, the employer shall make available a medical examination by a specialist within 30 days after receiving the PLHCP’s written opinion.

1926.1153(j)(3)(ii)(B)—A copy of the PLHCPs’ and specialists’ written medical opinions.

1926.1153(j)(3)(ii)(C)—A copy of the information provided to the PLHCPs and specialists.

1926.1153(i)(1)—Hazard communication. The employer shall include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS) (29 CFR 1910.1200). The employer shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (i)(2) [Employee Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

1926.1153(j)(3)(ii)(B)—A copy of the PLHCPs’ and specialists’ written medical opinions.

1926.1153(j)(3)(ii)(C)—A copy of the information provided to the PLHCPs and specialists.

Training and Communications

1926.1153(i)(1)—Hazard communication. The employer shall include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS) (29 CFR 1910.1200). The employer shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (i)(2) [Employee Information and Training] of this section. The employer shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

1926.1153(i)(2)(i)—The employer shall ensure that each employee covered by this section can demonstrate knowledge and understanding of at least the following. [Reference paragraph (i)(2) for specific requirements.]
Exposure Monitoring

1926.1153(d)(2)(iii)(C)—Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

1926.1153(d)(2)(iii)(D)—Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

1926.1153(d)(2)(iii)(E)—Where the most recent (noninitial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in paragraph (d)(2)(iv) [Reassessment of Exposures] of this section.

1926.1153(d)(2)(iv)—Reassessment of exposures. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

1926.1153(g)(1)—The employer shall establish and implement a written exposure control plan that contains at least the following elements:

1926.1153(g)(1)(i)—A description of the tasks in the workplace that involve exposure to respirable crystalline silica.

Medical Surveillance

1926.1153(i)(2)(i)(F)—The purpose and a description of the medical surveillance program required by paragraph (h) [Medical Surveillance] of this section.

Competent Person

1926.1153(g)(4)—The employer shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

1926.1153(i)(2)(i)(E)—The identity of the competent person designated by the employer in accordance with paragraph (g)(4) [Written Exposure Control Plan] of this section.

Qualified Person

1926.1153(h)(2)(vi)—Any other tests deemed appropriate by the PLHCP.

1926.1153(h)(3)—Periodic examinations. The employer shall make available medical examinations that include the procedures described in paragraph (h)(2) [Initial Examination] of this section (except paragraph (h)(2)(v)) at least every three years, or more frequently if recommended by the PLHCP.

1926.1153(h)(4)—Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the PLHCP with the following information. [Reference paragraph (h)(4) for specific requirements.]

1926.1153(h)(5)—PLHCP's written medical report for the employee. The employer shall ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed.
1926.1153(h)(5)(iv)—A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

1926.1153(h)(6)(i)—The employer shall obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following. [Reference paragraph (h)(6)(i) for specific requirements.]

1926.1153(h)(6)(ii)(B)—A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

1926.1153(h)(7)(i)—If the PLHCP’s written medical opinion indicates that an employee should be examined by a specialist, the employer shall make available a medical examination by a specialist within 30 days after receiving the PLHCP’s written opinion.

1926.1153(h)(7)(ii)—The employer shall ensure that the examining specialist is provided with all of the information that the employer is obligated to provide to the PLHCP in accordance with paragraph (h)(4) [Information Provided to the PLHCP] of this section.

1926.1153(j)(3)(ii)(B)—A copy of the PLHCPs’ and specialists’ written medical opinions.

1926.1153(j)(3)(ii)(C)—A copy of the information provided to the PLHCPs and specialists.
Subpart AA—Confined Spaces in Construction

1926.1203—GENERAL REQUIREMENTS

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—written program, procedures
• Inspections and Tests—tests, inspecting space, inspection data
• Recordkeeping—certifications
• Certification—written certifications
• Training and Communications—posting signs, inform entrants
• Exposure Monitoring—monitoring space
• Competent Person—evaluate space
• Qualified Person—authorized persons
• Signs, Markings and Tags—danger signs

Programs, Policies and Procedures

1926.1203(d)—If any employer decides that employees it directs will enter a permit space, that employer must have a written permit space program that complies with 1926.1204—Permit-Required Confined Space Program implemented at the construction site. The written program must be made available prior to and during entry operations for inspection by employees and their authorized representatives.

1926.1203(e)—An employer may use the alternate procedures specified in paragraph (e)(2) of this section for entering a permit space only under the conditions set forth in paragraph (e)(1) of this section.

1926.1203(f)—When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, each entry employer must have a competent person reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

1926.1203(g)(4)—If hazards arise within a permit space that has been reclassified as a non-permit space under paragraph (g) of this section, each employee in the space must exit the space. The entry employer must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of this standard.

1926.1203(h)(3)(ii)—Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space.

1926.1203(h)(5)(i)—The controlling contractor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations.

1926.1203(h)(5)(ii)—The entry employer must inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations.

1926.1203(h)(5)(iii)—The controlling contractor must apprise the host employer of the information exchanged with the entry entities pursuant to this subparagraph.

Inspections and Tests

1926.1203(e)(1)(iii)—The employer develops monitoring and inspection data that supports the demonstrations required by paragraphs (e)(1)(i) and (ii) of this section.
Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee’s authorized representative, must be provided an opportunity to observe the pre-entry testing required by this paragraph.

The entry employer must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, such entry must be performed under 1926.1204—Permit-Required Confined Space Program through 1926.1211—Rescue and Emergency Services. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.

Recordkeeping

If any employer decides that employees it directs will enter a permit space, that employer must have a written permit space program that complies with 1926.1204—Permit-Required Confined Space Program implemented at the construction site. The written program must be made available prior to and during entry operations for inspection by employees and their authorized representatives.

The employer develops monitoring and inspection data that supports the demonstrations required by paragraphs (e)(1)(i) and (ii) of this section.

If an initial entry of the permit space is necessary to obtain the data required by paragraph (e)(1)(iii) of this section, the entry is performed in compliance with 1926.1204—Permit-Required Confined Space Program through 1926.1211—Rescue and Emergency Services.

The employer must verify that the space is safe for entry and that the preentry measures required by paragraph (e)(2) of this section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification must be made before entry and must be made available to each employee entering the space or to that employee’s authorized representative.

The entry employer must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee’s authorized representative.

Certification

The employer must verify that the space is safe for entry and that the preentry measures required by paragraph (e)(2) of this section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification must be made before entry and must be made available to each employee entering the space or to that employee’s authorized representative.

The entry employer must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee’s authorized representative.

Training and Communications

Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space.

Note to paragraph (b)(1). A sign reading “DANGER-PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” or using other similar language would satisfy the requirement for a sign.
1926.1203(b)(2) — Inform, in a timely manner and in a manner other than posting, its employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

1926.1203(h)(1) — Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor. (Reference Paragraph (h)(1) for further requirements.)

1926.1203(h)(2)(i) — Obtain the host employer’s information about the permit space hazards and previous entry operations.

1926.1203(h)(2)(ii) — Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:

1926.1203(h)(2)(ii)(A) — The information received from the host employer.

1926.1203(h)(2)(ii)(B) — Any additional information the controlling contractor has about the subjects listed in paragraph (h)(1) of this section.

1926.1203(h)(2)(ii)(C) — The precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces.

1926.1203(h)(3) — Before entry operations begin, each entry employer must:

1926.1203(h)(3)(i) — Obtain all of the controlling contractor’s information regarding permit space hazards and entry operations; and

1926.1203(h)(3)(ii) — Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space.

1926.1203(h)(5)(i) — The controlling contractor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations.

1926.1203(h)(5)(ii) — The entry employer must inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations.

1926.1203(h)(5)(iii) — The controlling contractor must apprise the host employer of the information exchanged with the entry entities pursuant to this subparagraph.

Exposure Monitoring

1926.1203(e)(1)(iii) — The employer develops monitoring and inspection data that supports the demonstrations required by paragraphs (e)(1)(i) and (ii) of this section.

1926.1203(e)(2)(iii) — Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee’s authorized representative, must be provided an opportunity to observe the pre-entry testing required by this paragraph.

1926.1203(e)(2)(vi) — The atmosphere within the space must be continuously monitored unless the entry employer can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient. If continuous monitoring is used, the employer must ensure that the monitoring equipment has an alarm that will notify all entrants if a specified atmospheric threshold is achieved, or that an employee will check the monitor with sufficient frequency to ensure that entrants have adequate time to escape. If continuous monitoring is not used, periodic monitoring is required. All monitoring must ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee’s authorized representative, must be provided with an opportunity to observe the testing required by this paragraph (e)(2)(vi).
1926.1203(g)(2)—The entry employer must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, such entry must be performed under 1926.1204—Permit-Required Confined Space Program through 1926.1211—Rescue and Emergency Services. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.

Competent Person

1926.1203(a)—Before it begins work at a worksite, each employer must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

1926.1203(f)—When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, each entry employer must have a competent person reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

1926.1203(g)—A space classified by an employer as a permit-required confined space may only be reclassified as a non-permit confined space when a competent person determines that all of the applicable requirements in paragraphs (g)(1) through (4) of this section have been met.

Qualified Person

1926.1203(b)(2)—Inform, in a timely manner and in a manner other than posting, its employees’ authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

1926.1203(e)(2)(vi)—The atmosphere within the space must be continuously monitored unless the entry employer can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient. If continuous monitoring is used, the employer must ensure that the monitoring equipment has an alarm that will notify all entrants if a specified atmospheric threshold is achieved, or that an employee will check the monitor with sufficient frequency to ensure that entrants have adequate time to escape. If continuous monitoring is not used, periodic monitoring is required. All monitoring must ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee’s authorized representative, must be provided with an opportunity to observe the testing required by this paragraph (e)(2)(vi).

1926.1203(e)(2)(ix)—The employer must verify that the space is safe for entry and that the preentry measures required by paragraph (e)(2) of this section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification must be made before entry and must be made available to each employee entering the space or to that employee’s authorized representative.

Signs, Markings and Tags

1926.1203(b)(1)—Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space.

Note to paragraph (b)(1). A sign reading “DANGER-PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” or using other similar language would satisfy the requirement for a sign.

1926.1204—PERMIT-REQUIRED CONFINED SPACE PROGRAM

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.
STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—procedures, measures, engineering controls
- Inspections and Tests—tests
- Recordkeeping—entry permits
- Training and Communications—communications equipment
- Exposure Monitoring—monitoring
- Qualified Person—authorized entrants

Programs, Policies and Procedures

1926.1204—Each entry employer must:

1926.1204(a)—Implement the measures necessary to prevent unauthorized entry.

1926.1204(b)—Identify and evaluate the hazards of permit spaces before employees enter them.

1926.1204(c)—Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following. (Reference Paragraph (c) for further information.)

1926.1204(c)(5)—Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space.

1926.1204(d)(4)—Personal protective equipment insofar as feasible engineering and work-practice controls do not adequately protect employees.

1926.1204(e)—Evaluate permit space conditions in accordance with the following paragraphs (e)(1) through (6) of this section when entry operations are conducted:

1926.1204(e)(5)—Reevaluate the permit space in the presence of any authorized entrant or that employee’s authorized representative who requests that the employer conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate.

1926.1204(g)—If multiple spaces are to be assigned to a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of those permit spaces without distraction from the attendant’s responsibilities under 1926.1209—Duties of Attendants.

1926.1204(i)—Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed nonentry rescue), for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.

1926.1204(j)—Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard, including the safe termination of entry operations under both planned and emergency conditions.

1926.1204(k)—Develop and implement procedures to coordinate entry operations, in consultation with the controlling contractor; when employees of more than one employer are working simultaneously in a permit space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit space, foreseeably result in a hazard within the confined space, so that employees of one employer do not endanger the employees of any other employer.

1926.1204(l)—Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed.

1926.1204(m)—Review entry operations when the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized.
1926.1204(n)—Review the permit space program, using the canceled permits retained under 1926.1205(f)—Permitting Process, within 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

**Inspections and Tests**

1926.1204(c)(2)—Providing each authorized entrant or that employee’s authorized representative with the opportunity to observe any monitoring or testing of permit spaces.

1926.1204(e)(1)—Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space’s natural ventilation are made, and before entry is authorized to begin, except that, if an employer demonstrates that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), the employer must:

1926.1204(e)(1)(i)—Perform pre-entry testing to the extent feasible before entry is authorized.

**Training and Communications**

1926.1204(d)(3)—Communications equipment necessary for compliance with 1926.1208(c)—Duties of Authorized Entrants and 1926.1209(e)—Duties of Attendants, including any necessary electronic communication equipment for attendants assessing entrants’ status in multiple spaces.

1926.1204(h)—Designate each person who is to have an active role (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by 1926.1207—Training.

**Exposure Monitoring**

1926.1204(c)(5)—Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space.

1926.1204(c)(7)—Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee. (Reference Paragraph (c) for further requirements.)

1926.1204(d)(1)—Testing and monitoring equipment needed to comply with paragraph (e) of this section.

1926.1204(e)—Evaluate permit space conditions in accordance with the following paragraphs (e)(1) through (6) of this section when entry operations are conducted:

1926.1204(e)(1)—Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space’s natural ventilation are made, and before entry is authorized to begin, except that, if an employer demonstrates that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), the employer must:

1926.1204(e)(1)(i)—Perform pre-entry testing to the extent feasible before entry is authorized.

1926.1204(e)(1)(ii)—If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working, except that employers may use periodic monitoring in accordance with paragraph (e)(2) of this section for monitoring an atmospheric hazard if they can demonstrate that equipment for continuously monitoring that hazard is not commercially available.
1926.1204(e)(1)(iii)—Provide an early-warning system that continuously monitors for nonisolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.

1926.1204(e)(2)—Continuously monitor atmospheric hazards unless the employer can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations.

1926.1204(e)(3)—When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

1926.1204(e)(6)—Immediately provide each authorized entrant or that employee’s authorized representative with the results of any testing conducted in accordance with this section.

Qualified Person

1926.1204(d)(7)—Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.

1926.1204(e)(4)—Provide each authorized entrant or that employee’s authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.

1926.1204(h)—Designate each person who is to have an active role (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by 1926.1207—Training.

1926.1205—PERMITTING PROCESS

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—measures, entry permit
- Recordkeeping—entry permit
- Qualified Person—entry supervisor

Programs, Policies and Procedures

1926.1205(a)—Before entry is authorized, each entry employer must document the completion of measures required by 1926.1204(c)—Permit-Required Confined Space Program by preparing an entry permit.

1926.1205(f)—The entry employer must retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program required by 1926.1204(n)—Permit-Required Confined Space Program. Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

Recordkeeping

1926.1205(a)—Before entry is authorized, each entry employer must document the completion of measures required by 1926.1204(c)—Permit-Required Confined Space Program by preparing an entry permit.

1926.1205(b)—Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.
1926.1205(c)—The **completed permit** must be made available at the time of entry to all authorized entrants or their authorized representatives, by **posting** it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

1926.1205(d)—The **duration of the permit** may not exceed the time required to complete the assigned task or job identified on the **permit** in accordance with 1926.1206(b)—Entry Permit.

1926.1205(f)—The entry employer must **retain** each canceled **entry permit** for at least 1 year to facilitate the review of the **permit-required confined space program** required by 1926.1204(n)—Permit-Required Confined Space Program. Any problems encountered during an entry operation must be noted on the **pertinent permit** so that appropriate revisions to the **permit space program** can be made.

**Qualified Person**

1926.1205(b)—Before entry begins, the **entry supervisor** identified on the **permit** must **sign** the **entry permit** to authorize entry.

1926.1205(c)—The **completed permit** must be made available at the time of entry to all authorized entrants or their authorized representatives, by **posting** it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

1926.1205(e)—The **entry supervisor must terminate entry** and take the following action when any of the following apply:

1926.1205(e)(1)—**Cancel the entry permit** when the entry operations covered by the **entry permit** have been completed.

1926.1205(e)(2)—**Suspend or cancel the entry permit** and fully reassess the space before allowing reentry when a **condition** that is not allowed under the **entry permit** arises in or near the permit space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it.

1926.1205(e)(3)—**Cancel the entry permit** when a **condition that is not allowed under the entry permit** arises in or near the permit space and that condition is not covered by paragraph (e)(2) of this section.

1926.1205(f)—The entry employer must **retain** each canceled **entry permit** for at least 1 year to facilitate the review of the **permit-required confined space program** required by 1926.1204(n)—Permit-Required Confined Space Program. Any problems encountered during an entry operation must be noted on the **pertinent permit** so that appropriate revisions to the **permit space program** can be made.

1926.1206—**ENTRY PERMIT**

**Scope/Application:** This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—tracking system, measures, permits
- Inspections and Tests—tests
- Recordkeeping—entry permit
- Training and Communications—summoning rescue services, communication procedures
- Exposure Monitoring—monitoring levels
- Qualified Person—authorized entrants, signature
Programs, Policies and Procedures

1926.1206(d)—The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space.

1926.1206(i)—The measures used to isolate the permit space and to eliminate or control permit space hazards before entry.

1926.1206(l)—The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.

1926.1206(m)—The communication procedures used by authorized entrants and attendants to maintain contact during the entry.

1926.1206(o)—Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

Inspections and Tests

1926.1206(k)—The results of tests and monitoring performed under 1926.1204(e)—Permit-Required Confined Space Program, accompanied by the names or initials of the testers and by an indication of when the tests were performed.

Recordkeeping

1926.1206—The entry permit that documents compliance with this section and authorizes entry to a permit space must identify:

1926.1206(a)—The permit space to be entered.

1926.1206(b)—The purpose of the entry.

1926.1206(c)—The date and the authorized duration of the entry permit.

1926.1206(d)—The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space.

1926.1206(g)—The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry.

Training and Communications

1926.1206(l)—The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.

1926.1206(m)—The communication procedures used by authorized entrants and attendants to maintain contact during the entry.

1926.1206(n)—Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard.

1926.1206(o)—Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety.

Exposure Monitoring

1926.1206(e)—Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working.
1926.1206(k)—The results of tests and monitoring performed under 1926.1204(e)—Permit-Required Confined Space Program, accompanied by the names or initials of the testers and by an indication of when the tests were performed.

Qualified Person

1926.1206(d)—The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space;

1926.1206(f)—Each person, by name, currently serving as an attendant.

1926.1206(g)—The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry.

1926.1206(l)—The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.

1926.1206(m)—The communication procedures used by authorized entrants and attendants to maintain contact during the entry.

1926.1207—TRAINING

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—procedures
- Recordkeeping—training records
- Training and Communications—initially, training records
- Qualified Person—authorized employee

Programs, Policies and Procedures

1926.1207(c)—The training must establish employee proficiency in the duties required by this standard and must introduce new or revised procedures, as necessary, for compliance with this standard.

Recordkeeping

1926.1207(d)—The employer must maintain training records to show that the training required by paragraphs (a) through (c) of this section has been accomplished. The training records must contain each employee’s name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

Training and Communications

1926.1207(a)—The employer must provide training to each employee whose work is regulated by this standard, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

1926.1207(c)—The training must establish employee proficiency in the duties required by this standard and must introduce new or revised procedures, as necessary, for compliance with this standard.
1926.1207(d)—The employer must maintain training records to show that the training required by paragraphs (a) through (c) of this section has been accomplished. The training records must contain each employee’s name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

Qualified Person

1926.1207(a)—The employer must provide training to each employee whose work is regulated by this standard, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

1926.1208—DUTIES OF AUTHORIZED ENTRANTS

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS

- Training and Communications—communication
- Qualified Person—authorized entrants

Training and Communications

1926.1208—The entry employer must ensure that all authorized entrants:

1926.1208(a)—Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

1926.1208(c)—Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required by 1926.1209(f)—Duties of Attendants.

Qualified Person

1926.1208—The entry employer must ensure that all authorized entrants:

1926.1208(a)—Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

1926.1209—DUTIES OF ATTENDANTS

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—rescue procedures
- Training and Communications—communication
- Qualified Person—entry supervisor

Programs, Policies and Procedures

1926.1209(i)—Performs non-entry rescues as specified by the employer’s rescue procedure.
Training and Communications

1926.1209—The entry employer must ensure that each attendant:

1926.1209(a)—Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

1926.1209(c)—Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under 1926.1206(d)—Entry Permit accurately identifies who is in the permit space.

1926.1209(e)—Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space under 1926.1208(e)—Duties of Authorized Entrants.

1926.1209(f)—Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:

1926.1209(g)—Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

1926.1209(h)—Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:

1926.1209(h)(1)—Warns the unauthorized persons that they must stay away from the permit space.

1926.1209(h)(2)—Advises the unauthorized persons that they must exit immediately if they have entered the permit space.

1926.1209(h)(3)—Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

Qualified Person

1926.1209—The entry employer must ensure that each attendant:

1926.1209(a)—Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

1926.1209(c)—Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under 1926.1206(d)—Entry Permit accurately identifies who is in the permit space.

1926.1209(e)—Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space under 1926.1208(e)—Duties of Authorized Entrants.

1926.1209(f)—Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions. (Reference Paragraph (f) for specific requirements.)

1926.1209(g)—Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

1926.1209(j)—Performs no duties that might interfere with the attendant’s primary duty to assess and protect the authorized entrants.
1926.1210—DUTIES OF ENTRY SUPERVISORS

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—procedures
- Inspections and Tests—tests
- Training and Communications—communication
- Qualified Person—entry supervisor

Programs, Policies and Procedures

1926.1210(b)—Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

1926.1210(f)—Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

Inspections and Tests

1926.1210(b)—Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

Training and Communications

1926.1210—The entry employer must ensure that each entry supervisor:

1926.1210(a)—Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

1926.1210(d)—Verifies that rescue services are available and that the means for summoning them are operable, and that the employer will be notified as soon as the services become unavailable.

Qualified Person

1926.1210—The entry employer must ensure that each entry supervisor:

1926.1210(a)—Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

1926.1211—RESCUE AND EMERGENCY SERVICES

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—procedures
- Recordkeeping—safety data sheet
- Certification—first aid and CPR
Training and Communications—initially, training records
Qualified Person—authorized employee

Programs, Policies and Procedures

1926.1211(a)—An employer who designates rescue and emergency services, pursuant to 1926.1204(i)—Permit-Required Confined Space Program, must:

1926.1211(a)(1)—Evaluate a prospective rescuer’s ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified.

1926.1211(a)(2)—Evaluate a prospective rescue service’s ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified.

1926.1211(a)(5)—Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

Recordkeeping

1926.1211(d)—If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

1926.1211(b)(3)—Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). The employer must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available.

Certification

1926.1211(b)(3)—Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). The employer must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available.

Training and Communications

1926.1211(a)(3)(iii)—Agrees to notify the employer immediately in the event that the rescue service becomes unavailable.

1926.1211(a)(4)—Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site.

1926.1211(b)—An employer whose employees have been designated to provide permit space rescue and/or emergency services must take the following measures and provide all equipment and training at no cost to those employees:

1926.1211(b)(1)—Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE.

1926.1211(b)(2)—Train each affected employee to perform assigned rescue duties. The employer must ensure that such employees successfully complete the training required and establish proficiency as authorized entrants, as provided by 1926.1207—Training and 1926.1208—Duties of Authorized Entrants.

1926.1211(b)(3)—Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). The employer must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available.
1926.1211(b)(4)—Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space. Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

1926.1211(c)—Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The employer must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails.

Qualified Person

1926.1211(a)—An employer who designates rescue and emergency services, pursuant to 1926.1204(i)—Permit-Required Confined Space Program, must:

1926.1211(a)(1)—Evaluate a prospective rescuer’s ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified.

1926.1211(a)(2)—Evaluate a prospective rescue service’s ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified.

1926.1211(a)(5)—Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

1926.1211(c)—Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The employer must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails.

1926.1211(c)(1)—Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant’s back near shoulder level, above the entrant’s head, or at another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.

1926.1211(c)(3)—Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or retrieval lines that will not work due to the internal configuration of the permit space.

1926.1212—EMPLOYEE PARTICIPATION

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—permit space program
- Recordkeeping—information
- Qualified Person—authorized representative
Programs, Policies and Procedures

1926.1212(a)—Employers must consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program required by 1926.1203—General Requirements.

Recordkeeping

1926.1212(b)—Employers must make available to each affected employee and his/her authorized representatives all information required to be developed by this standard.

Qualified Person

1926.1212(a)—Employers must consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program required by 1926.1203—General Requirements.

1926.1212(b)—Employers must make available to each affected employee and his/her authorized representatives all information required to be developed by this standard.

1926.1213—PROVISION OF DOCUMENTS TO SECRETARY

Scope/Application: This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces. It does not apply to excavations, underground construction, caissons, cofferdams, or commercial diving.

STANDARD HIGHLIGHTS

• Recordkeeping—documents

Recordkeeping

1926.1213—For each document required to be retained in this standard, the retaining employer must make the document available on request to the Secretary of Labor or the Secretary’s designee.
Subpart CC—Cranes and Derricks in Construction

1926.1402—GROUND CONDITIONS

Scope/Application: This standard applies to power-operated equipment, when used in construction, that can hoist, lower, and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Exception: This subpart does not cover: Machinery included in paragraph (a) [Scope] of this section while it has been converted or adapted for a non-hoisting/lifting use. Such conversions/adaptations include, but are not limited to, power shovels, excavators and concrete pumps. Power shovels, excavators, wheel loaders, backhoes, loader backhoes, track loaders. This machinery is also excluded when used with chains, slings or other rigging to lift suspended loads. Automotive wreckers and tow trucks when used to clear wrecks and haul vehicles. Digger derricks when used for augering holes for poles carrying electric and telecommunication lines, placing and removing the poles, and for handling associated materials to be installed on or removed from the poles. Digger derricks used in work subject to 29 CFR part 1926, subpart V [Power Transmission and Distribution], must comply with 29 CFR 1910.269 [Electric Power Generation, Transmission, and Distribution]. Digger derricks used in construction work for telecommunication service (as defined at 29 CFR 1910.268(s)(40) [Telecommunications]) must comply with 29 CFR 1910.268 [Telecommunications]. Machinery originally designed as vehicle-mounted aerial devices (for lifting personnel) and self-propelled elevating work platforms. Telescopic/hydraulic gantry systems. Stacker cranes. Powered industrial trucks (forklifts), except when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load. Mechanic’s truck with a hoisting device when used in activities related to equipment maintenance and repair. Machinery that hoists by using a come-a-long or chainfall. Dedicated drilling rigs. Gin poles when used for the erection of communication towers. Tree trimming and tree removal work. Anchor handling or dredge-related operations with a vessel or barge using an affixed A-frame. Roustabouts. Helicopter cranes.

Material Delivery: Articulating/knuckle-boom truck cranes that deliver material to a construction site when used to transfer materials from the truck crane to the ground, without arranging the materials in a particular sequence for hoisting. Articulating/knuckle-boom truck cranes that deliver material to a construction site when the crane is used to transfer building supply sheet goods or building supply packaged materials from the truck crane onto a structure, using a fork/cradle at the end of the boom, but only when the truck crane is equipped with a properly functioning automatic overload prevention device. Such sheet goods or packaged materials include, but are not limited to: Sheets of sheet rock, sheets of plywood, bags of cement, sheets or packages of roofing shingles, and rolls of roofing felt.

This exclusion does not apply when: The articulating/knuckle-boom crane is used to hold, support or stabilize the material to facilitate a construction activity, such as holding material in place while it is attached to the structure. The material being handled by the articulating/knuckle-boom crane is a prefabricated component. Such prefabricated components include, but are not limited to: Precast concrete members or panels, roof trusses (wooden, cold-formed metal, steel, or other material), prefabricated building sections such as, but not limited to: Floor panels, wall panels, roof panels, roof structures, or similar items; The material being handled by the crane is a structural steel member (for example, steel joists, beams, columns, steel decking (bundled or unbundled) or a component of a systems-engineered metal building (as defined in 29 CFR 1926 subpart R [Special Industries]).

STANDARD HIGHLIGHTS

• Training and Communications—inform user, discussions with controlling entity

Training and Communications

1926.1402(c)(2)—Inform the user of the equipment and the operator of the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as-built drawings, and soil analyses) that are in the possession of the controlling entity (whether at the site or off-site) or the hazards are otherwise known to that controlling entity.
1926.1402(e)—If the A/D [assembly/disassembly] director or the operator determines that ground conditions do not meet the requirements in paragraph (b) of this section, that person’s employer must have a discussion with the controlling entity regarding the ground preparations that are needed so that, with the use of suitable supporting materials/devices (if necessary), the requirements in paragraph (b) of this section can be met.

1926.1403—ASSEMBLY/DISASSEMBLY—SELECTION OF MANUFACTURER OR EMPLOYER PROCEDURES

Scope/Application: This standard applies to power-operated equipment, when used in construction, that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selfereciting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—procedures for manufacturers and employers
- Recordkeeping—procedures for manufacturers

Programs, Policies and Procedures

1926.1403—When assembling or disassembling equipment (or attachments), the employer must comply with all applicable manufacturer prohibitions and must comply with either:

1926.1403(a)—Manufacturer procedures applicable to assembly and disassembly, or

1926.1403(b)—Employer procedures for assembly and disassembly. Employer procedures may be used only where the employer can demonstrate that the procedures used meet the requirements in Sec. 1926.1406 [Assembly/Disassembly—Employer Procedures—General Requirements].

Note: The employer must follow manufacturer procedures when an employer uses synthetic slings during assembly or disassembly rigging. (See Sec. 1926.1404(r) [Rigging].)

Recordkeeping

1926.1403—When assembling or disassembling equipment (or attachments), the employer must comply with all applicable manufacturer prohibitions and must comply with either:

1926.1403(a)—Manufacturer procedures applicable to assembly and disassembly

1926.1404—ASSEMBLY/DISASSEMBLY—GENERAL REQUIREMENTS (APPLIES TO ALL ASSEMBLY AND DISASSEMBLY OPERATIONS)

Scope/Application: This standard applies to power-operated equipment, when used in construction, that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selfereciting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.
Programs, Policies and Procedures

1926.1404(c)—Review of procedures. The A/D director must review the applicable assembly/disassembly procedures immediately prior to the commencement of assembly/disassembly unless the A/D director understands the procedures and has applied them to the same type and configuration of equipment (including accessories, if any).

1926.1404(f)(2)—Exception. Where the employer demonstrates that site constraints require one or more employees to be under the boom, jib, or other components when pins (or similar devices) are being removed, the A/D director must implement procedures that minimize the risk of unintended dangerous movement and minimize the duration and extent of exposure under the boom. (See Non-mandatory Appendix B [Assembly/Disassembly—Sample Procedures for Minimizing The Risk of Unintended Dangerous Boom Movement] of this subpart for an example.)

Inspections and Tests

1926.1404(m)(2)—Post-assembly inspection. Upon completion of assembly, the equipment must be inspected to ensure compliance with paragraph (m)(1) [Components and Configuration] of this section (see Sec. 1926.1412(C) [Post-Assembly Inspection Requirements]).

Recordkeeping

1926.1404(k)—Weight of components. The weight of each of the components must be readily available.

1926.1404(m)(1)—The selection of components, and configuration of the equipment, that affect the capacity or safe operation of the equipment must be in accordance with:

1926.1404(m)(1)(i)—Manufacturer instructions, prohibitions, limitations, and specifications. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must approve, in writing, the selection and configuration of components; or

1926.1404(m)(1)(ii)—Approved modifications that meet the requirements of Sec. 1926.1434 (Equipment modifications).

1926.1404(r)(3)—When synthetic slings are used, the synthetic sling manufacturer’s instructions, limitations, specifications and recommendations must be followed.

Training and Communications

1926.1404(b)—Knowledge of procedures. The A/D director must understand the applicable assembly/disassembly procedures.

1926.1404(d)(1)—Before commencing assembly/disassembly operations, the A/D director must ensure that the crew members understand information. [Reference paragraph (d)(1) for specific information.]

1926.1404(e)(1)—Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment, or near the equipment (or load) where the crew member could be injured by movement of the equipment (or load), the crew member must inform the operator that he/she is going to that location.
Where the operator knows that a crew member went to a location covered by paragraph (e)(1) [Protecting Assembly/Disassembly Crew Members out of Operator View] of this section, the operator must not move any part of the equipment (or load) until the operator is informed in accordance with a pre-arranged system of communication that the crew member is in a safe position.

Cantilevered boom sections. **Manufacturer limitations** on the maximum amount of boom supported only by cantilevering must not be exceeded. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must determine in writing this limitation, which must not be exceeded.

### Competent Person

**1926.1404(a)(1)**—Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons (“A/D director”).

**1926.1404(a)(2)**—Where the assembly/disassembly is being performed by only one person, that person must meet the criteria for both a competent person and a qualified person. For purposes of this standard, that person is considered the A/D director.

### Qualified Person

**1926.1404(a)(1)**—Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons (“A/D director”).

**1926.1404(a)(2)**—Where the assembly/disassembly is being performed by only one person, that person must meet the criteria for both a competent person and a qualified person. For purposes of this standard, that person is considered the A/D director.

**1926.1404(r)(1)**—The rigging work is done by a qualified rigger.

### 1926.1406—ASSEMBLY/DISASSEMBLY—EMPLOYER PROCEDURES—GENERAL REQUIREMENTS

**Scope/Application:** This standard applies to power-operated equipment, when used in construction, that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—develop procedures
- Qualified Person—develop procedures

### Programs, Policies and Procedures

**1926.1406(b)**—Qualified person. Employer procedures must be developed by a qualified person.

### Qualified Person

**1926.1406(b)**—Qualified person. Employer procedures must be developed by a qualified person.
**Scope/Application:** This standard applies to power-operated equipment, when used in construction, that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**

- Programs, Policies and Procedures—determination
- Training and Communications—planning meeting, confirmation with utilities
- Qualified Person—dedicated spotter
- Signs, Markings and Tags—posted warnings

**Programs, Policies and Procedures**

1926.1407(a)—Before assembling or disassembling equipment, the employer must determine if any part of the equipment, load line, or load (including rigging and lifting accessories) could get, in the direction or area of assembly/disassembly, closer than 20 feet to a power line during the assembly/disassembly process. If so, the employer must meet the requirements in Option (1), Option (2), or Option (3) of this section. [Reference paragraph (a) for specific options.]

**Training and Communications**

1926.1407(b)(1)—Conduct a planning meeting with the Assembly/Disassembly director (A/D director), operator, assembly/disassembly crew and the other workers who will be in the assembly/disassembly area to review the location of the power line(s) and the steps that will be implemented to prevent encroachment/electrocution.

1926.1407(c)—Assembly/disassembly below power lines prohibited. No part of a crane/derrick, load line, or load (including rigging and lifting accessories), whether partially or fully assembled, is allowed below a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line.

1926.1407(d)—Assembly/disassembly inside Table A clearance prohibited. No part of a crane/derrick, load line, or load (including rigging and lifting accessories), whether partially or fully assembled, is allowed closer than the minimum approach distance under Table A (see Sec. 1926.1408) to a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line.

1926.1407(e)—Voltage information. Where Option (3) of this section is used, the utility owner/operator of the power lines must provide the requested voltage information within two working days of the employer’s request.

1926.1407(f)—Power lines presumed energized. The employer must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.

**Qualified Person**

1926.1407(b)(3)—At least one of the following additional measures must be in place. The measure selected from this list must be effective in preventing encroachment.

1926.1407(b)(3)(i)—Use a dedicated spotter who is in continuous contact with the equipment operator. [Reference paragraph (b)(3) for all measures.]
Signs, Markings and Tags

1926.1407(g)—Posting of electrocution warnings. There must be at least one electrocution hazard warning conspicuously posted in the cab so that it is in view of the operator and (except for overhead gantry and tower cranes) at least two on the outside of the equipment.

1926.1408—POWER LINE SAFETY (UP TO 350 KV)—EQUIPMENT OPERATIONS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Training and Communications—planning meeting, utilities confirmation, training
• Qualified Person—dedicated spotter
• Signs, Markings and Tags—warning signs and lines, barricades

Training and Communications

1926.1408(a)(2)—Determine if any part of the equipment, load line or load (including rigging and lifting accessories), if operated up to the equipment’s maximum working radius in the work zone, could get closer than 20 feet to a power line. If so, the employer must meet the requirements in Option (1) [Deenergize and Ground], Option (2) [20 Foot Clearance], or Option (3) [Table A Clearance] [Reference paragraph (a)(2) for each option.] of this section, as follows:

1926.1408(a)(2)(i)—Option (1)—Deenergize and ground. Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite.

1926.1408(b)—Preventing encroachment/electrocution. Where encroachment precautions are required under Option (2) [20 Foot Clearance] or Option (3) [Table A Clearance] of this section [Reference paragraph (a)(2) for each option.], all of the following requirements must be met:

1926.1408(b)(1)—Conduct a planning meeting with the operator and the other workers who will be in the area of the equipment or load to review the location of the power line(s), and the steps that will be implemented to prevent encroachment/electrocution.

1926.1408(c)—Voltage information. Where Option (3) [Table A Clearance] of this section is used, the utility owner/operator of the power lines must provide the requested voltage information within two working days of the employer’s request. [Reference paragraph (a)(2) for each option.]

1926.1408(g)(1)—The employer must train each operator and crew member assigned to work with the equipment. [Reference paragraph (g)(1) for specific training requirements.]

1926.1408(g)(2)—Employees working as dedicated spotters must be trained to enable them to effectively perform their task, including training on the applicable requirements of this section.

1926.1408(g)(3)—Training under this section must be administered in accordance with Sec. 1926.1430(g) [Training].
Qualified Person

1926.1408(b)(3)—Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at 20 feet from the power line (if using Option (2) [20 Foot Clearance] of this section) or at the minimum approach distance under Table A [Minimum Clearance Distances] (see Sec. 1926.1408) (if using Option (3) [Table A Clearance] of this section). If the operator is unable to see the elevated warning line, a dedicated spotter must be used as described in Sec. 1926.1408(b)(4)(ii) in addition to implementing one of the measures described in §§ 1926.1408(b)(4)(i), (iii), (iv) and (v).

1926.1408(b)(4)—Implement at least one of the following measures:

1926.1408(b)(4)(ii)—A dedicated spotter who is in continuous contact with the operator. [Reference paragraph (b) (4) for specific options.]

Signs, Markings and Tags

1926.1408(b)(3)—Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at 20 feet from the power line (if using Option (2) [20 Foot Clearance] of this section) or at the minimum approach distance under Table A [Minimum Clearance Distances] (see Sec. 1926.1408) (if using Option (3) [Table A Clearance] of this section). If the operator is unable to see the elevated warning line, a dedicated spotter must be used as described in Sec. 1926.1408(b)(4)(ii) in addition to implementing one of the measures described in §§ 1926.1408(b)(4)(i), (iii), (iv) and (v).

1926.1409—POWER LINE SAFETY (OVER 350 KV)

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as hammerhead boom), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Exception: The requirements of Sec. 1926.1407 [Power Line Safety (Up to 350 kV)—Assembly and Disassembly] and Sec. 1926.1408 [Power Line Safety (Up to 350 kV)—Equipment Operations] apply to power lines over 350 kV except for power lines at or below 1000 kV, where the distance “20 feet” is specified, the distance “50 feet” must be substituted; and for power lines over 1000 kV, the minimum clearance distance must be established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.

STANDARD HIGHLIGHTS

- Qualified Person—registered professional engineer

Qualified Person

1926.1409(b)—For power lines over 1000 kV, the minimum clearance distance must be established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.

1926.1410—POWER LINE SAFETY (ALL VOLTAGES)—EQUIPMENT OPERATIONS CLOSER THAN THE TABLE A ZONE

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as hammerhead boom)
a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Additional Note: Equipment operations in which any part of the equipment, load line, or load (including rigging and lifting accessories) is closer than the minimum approach distance under Table A of Sec. 1926.1408 to an energized power line is prohibited, except where the employer demonstrates that all of the following requirements are met.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—documented, available, develop procedures
- Recordkeeping—procedures
- Training and Communications—planning meetings, consultation with utilities, training
- Qualified Person—planning meetings, dedicated spotter
- Signs, Markings and Tags—markings

Programs, Policies and Procedures

1926.1410(d)—A planning meeting with the employer and utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) is held to determine the procedures that will be followed to prevent electrical contact and electrocution. [Reference paragraph (d) for procedures.]

1926.1410(e)—The procedures developed to comply with paragraph (d) of this section are documented and immediately available on-site.

1926.1410(f)—The equipment user and utility owner/operator (or registered professional engineer) meet with the equipment operator and the other workers who will be in the area of the equipment or load to review the procedures that will be implemented to prevent breaching the minimum approach distance established in paragraph (c) [Minimum Clearance Distance] of this section and prevent electrocution.

1926.1410(g)—The procedures developed to comply with paragraph (d) of this section are implemented.

1926.1410(h)—The utility owner/operator (or registered professional engineer) and all employers of employees involved in the work must identify one person who will direct the implementation of the procedures. The person identified in accordance with this paragraph must direct the implementation of the procedures and must have the authority to stop work at any time to ensure safety.

1926.1410(j)—If a problem occurs implementing the procedures being used to comply with paragraph (d) of this section, or indicating that those procedures are inadequate to prevent electrocution, the employer must safely stop operations and either develop new procedures to comply with paragraph (d) of this section or have the utility owner/operator deenergize and visibly ground or relocate the power line before resuming work.

Recordkeeping

1926.1410(e)—The procedures developed to comply with paragraph (d) of this section are documented and immediately available on-site.

Training and Communications

1926.1410(b)—The employer determines that, after consultation with the utility owner/operator, it is infeasible to deenergize and ground the power line or relocate the power line.

1926.1410(d)—A planning meeting with the employer and utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) is held to determine the procedures that will be followed to prevent electrical contact and electrocution. [Reference paragraph (d) for procedures.]
1926.1410(f)—The equipment user and utility owner/operator (or registered professional engineer) meet with the equipment operator and the other workers who will be in the area of the equipment or load to review the procedures that will be implemented to prevent breaching the minimum approach distance established in paragraph (c) [Minimum Clearance Distance] of this section and prevent electrocution.

1926.1410(m)—The employer must train each operator and crew member assigned to work with the equipment in accordance with Sec. 1926.1408(g) [Training].

Qualified Person

1926.1410(c)(1)—The power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution determines the minimum clearance distance that must be maintained to prevent electrical contact in light of the on-site conditions. The factors that must be considered in making this determination include, but are not limited to: Conditions affecting atmospheric conductivity; time necessary to bring the equipment, load line, and load (including rigging and lifting accessories) to a complete stop; wind conditions; degree of sway in the power line; lighting conditions, and other conditions affecting the ability to prevent electrical contact.

1926.1410(d)—A planning meeting with the employer and utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) is held to determine the procedures that will be followed to prevent electrical contact and electrocution. [Reference paragraph (d) for procedures.]

1926.1410(d)(2)—A dedicated spotter who is in continuous contact with the operator. [Reference paragraph (d) for procedures.]

1926.1410(h)—The utility owner/operator (or registered professional engineer) and all employers of employees involved in the work must identify one person who will direct the implementation of the procedures. The person identified in accordance with this paragraph must direct the implementation of the procedures and must have the authority to stop work at any time to ensure safety.

Signs, Markings and Tags

1926.1410(d)(3)—An elevated warning line, or barricade (not attached to the crane), in view of the operator (either directly or through video equipment), equipped with flags or similar high-visibility markings, to prevent electrical contact. However, this provision does not apply to work covered by subpart V [Power Transmission and Distribution] of this part.

1926.1411—POWER LINE SAFETY—WHILE TRAVELING UNDER OR NEAR POWER LINES WITH NO LOAD

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”, luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Note: This section establishes procedures and criteria that must be met for equipment traveling under or near a power line on a construction site with no load. Equipment traveling on a construction site with a load is governed by §§ 1926.1408 [Power Line Safety (Up to 350 kV)—Equipment Operations Apply to Power Lines Over 350 kV], 1926.1409 [Power Line Safety (Over 350 kV)] or 1926.1411 [Power Line Safety—While Traveling Under or Near Power Lines With No Load], whichever is appropriate, and Sec. 1926.1417(u) [Traveling With a Load].
STANDARD HIGHLIGHTS

- Training and Communications—continuous contact with driver/operator
- Qualified Person—dedicated spotter

Training and Communications

1926.1411(b)(4)—Dedicated spotter. If any part of the equipment while traveling will get closer than 20 feet to the power line, the employer must ensure that a dedicated spotter who is in continuous contact with the driver/operator is used. [Reference paragraph (b)(4) for specific duties.]

Qualified Person

1926.1411(b)(4)—Dedicated spotter. If any part of the equipment while traveling will get closer than 20 feet to the power line, the employer must ensure that a dedicated spotter who is in continuous contact with the driver/operator is used. [Reference paragraph (b)(4) for specific duties.]

1926.1412—INSPECTIONS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., "hammerhead boom"), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

- Inspections and Tests—Inspections conducted prior to use, each shift and annually
- Recordkeeping—retention requirements
- Competent Person—inspections
- Qualified Person—inspections, modification/additions approval, registered professional engineer

Inspections and Tests

1926.1412(a)(1)—Equipment that has had modifications or additions which affect the safe operation of the equipment (such as modifications or additions involving a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) or capacity must be inspected by a qualified person after such modifications/additions have been completed, prior to initial use. The inspection must meet all of the following requirements:

1926.1412(a)(1)(i)—The inspection must assure that the modifications or additions have been done in accordance with the approval obtained pursuant to Sec. 1926.1434 (Equipment modifications).

1926.1412(b)(1)—Equipment that has had a repair or adjustment that relates to safe operation (such as: A repair or adjustment to a safety device or operator aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism), must be inspected by a qualified person after such a repair or adjustment has been completed, prior to initial use. [Reference paragraph (b)(1) for specific information.]

1926.1412(c)(1)—Upon completion of assembly, the equipment must be inspected by a qualified person to assure that it is configured in accordance with manufacturer equipment criteria.

1926.1412(d)(1)—A competent person must begin a visual inspection prior to each shift the equipment will be used, which must be completed before or during that shift. The inspection must consist of observation for apparent deficiencies.
Taking apart equipment components and booming down is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating taking apart equipment components or booming down is needed. Determinations made in conducting the inspection must be reassessed in light of observations made during operation. [Reference paragraph (d)(1) for specific information.]

1926.1412(e)(1)—Each month the equipment is in service it must be inspected in accordance with paragraph (d) [Each Shift] of this section.

1926.1412(f)(1)—At least every 12 months the equipment must be inspected by a qualified person in accordance with paragraph (d) [Each Shift] of this section except that the corrective action set forth in paragraphs (f)(4), (f)(5), and (f)(6) [Annual/Comprehensive] of this section must apply in place of the corrective action required by paragraphs (d)(2) and (d)(3) [Each Shift] of this section.

1926.1412(f)(2)—In addition, at least every 12 months, the equipment must be inspected by a qualified person. Disassembly is required, as necessary, to complete the inspection. The equipment must be inspected. [Reference paragraph (f)(2) for specific information.]

1926.1412(g)—Severe service. Where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, prolonged exposure to a corrosive atmosphere), the employer must stop using the equipment and a qualified person must:

- 1926.1412(g)(1)—Inspect the equipment for structural damage to determine if the equipment can continue to be used safely. [Reference paragraph (g) for specific information.]

1926.1412(j)—Any part of a manufacturer’s procedures regarding inspections that relate to safe operation (such as to a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) that is more comprehensive or has a more frequent schedule of inspection than the requirements of this section must be followed.

Recordkeeping

1926.1412(e)(3)(i)—Information must be documented and maintained by the employer that conducts the inspection. [Reference paragraph (e)(3)(i) for specific information.]

1926.1412(e)(3)(ii)—This document must be retained for a minimum of three months.

1926.1412(f)(7)— Documentation of annual/comprehensive inspection. Information must be documented, maintain, and retained for a minimum of 12 months, by the employer that conducts the inspection. [Reference paragraph (f)(7) for specific information.]

1926.1412(k)—All documents produced under this section must be available, during the applicable document retention period, to all persons who conduct inspections under this section.

Competent Person

1926.1412(d)(1)—A competent person must begin a visual inspection prior to each shift the equipment will be used, which must be completed before or during that shift. The inspection must consist of observation for apparent deficiencies. Taking apart equipment components and booming down is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating taking apart equipment components or booming down is needed. Determinations made in conducting the inspection must be reassessed in light of observations made during operation. [Reference paragraph (d)(1) for specific information.]

1926.1412(d)(2)—If any deficiency in paragraphs (d)(1)(i) through (xiii) [Each Shift] of this section (or in additional inspection items required to be checked for specific types of equipment in accordance with other sections of this standard) is identified, an
immediate determination must be made by the competent person as to whether the deficiency constitutes a safety hazard. If the deficiency is determined to constitute a safety hazard, the equipment must be taken out of service until it has been corrected. See Sec. 1926.1417 [Operation].

1926.1412(e)(1)—Each month the equipment is in service it must be inspected in accordance with paragraph (d) [Each Shift] of this section.

Qualified Person

1926.1412(a)(1)—Equipment that has had modifications or additions which affect the safe operation of the equipment (such as modifications or additions involving a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) or capacity must be inspected by a qualified person after such modifications/additions have been completed, prior to initial use. The inspection must meet all of the following requirements:

1926.1412(a)(1)(i)—The inspection must assure that the modifications or additions have been done in accordance with the approval obtained pursuant to Sec. 1926.1434 (Equipment modifications).

1926.1412(b)(1)—Equipment that has had a repair or adjustment that relates to safe operation (such as: A repair or adjustment to a safety device or operator aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism), must be inspected by a qualified person after such a repair or adjustment has been completed, prior to initial use. [Reference paragraph (b)(1) for specific information.]

1926.1412(b)(1)(ii)—Where manufacturer equipment criteria are unavailable or inapplicable, the qualified person must:

1926.1412(b)(1)(ii)(A)—Determine if a registered professional engineer (RPE) is needed to develop criteria for the repair/adjustment. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that they are developed by an RPE.

1926.1412(c)(1)—Upon completion of assembly, the equipment must be inspected by a qualified person to assure that it is configured in accordance with manufacturer equipment criteria.

1926.1412(c)(2)—Where manufacturer equipment criteria are unavailable, a qualified person must:

1926.1412(c)(2)(i)—Determine if a registered professional engineer (RPE) familiar with the type of equipment involved is needed to develop criteria for the equipment configuration. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that they are developed by an RPE.

1926.1412(f)(1)—At least every 12 months the equipment must be inspected by a qualified person in accordance with paragraph (d) [Each Shift] of this section except that the corrective action set forth in paragraphs (f)(4), (f)(5), and (f)(6) [Annual/Comprehensive] of this section must apply in place of the corrective action required by paragraphs (d)(2) and (d)(3) [Each Shift] of this section.

1926.1412(f)(2)—In addition, at least every 12 months, the equipment must be inspected by a qualified person. Disassembly is required, as necessary, to complete the inspection. The equipment must be inspected. [Reference paragraph (f)(2) for specific information.]

1926.1412(f)(4)—If any deficiency is identified, an immediate determination must be made by the qualified person as to whether the deficiency constitutes a safety hazard or, though not yet a safety hazard, needs to be monitored in the monthly inspections.
1926.1412(g)—Severe service. Where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, prolonged exposure to a corrosive atmosphere), the employer must stop using the equipment and a qualified person must:

1926.1412(g)(1)—Inspect the equipment for structural damage to determine if the equipment can continue to be used safely. [Reference paragraph (g) for specific information.]

1926.1413—WIRE ROPE—INSPECTION

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Inspections and Tests—visual, each shift, monthly, and annual inspections
• Recordkeeping—retention, documentation
• Competent Person—visual inspections prior to each shift, determinations
• Qualified Person—inspections

Inspections and Tests

1926.1413(a)(1)—A competent person must begin a visual inspection prior to each shift the equipment is used, which must be completed before or during that shift. The inspection must consist of observation of wire ropes (running and standing) that are likely to be in use during the shift for apparent deficiencies, including those listed in paragraph (a)(2) [Apparent Deficiencies] of this section. Untwisting (opening) of wire rope or booming down is not required as part of this inspection.

1926.1413(b)(1)—Each month an inspection must be conducted in accordance with paragraph (a) [Shift Inspection] of this section.

1926.1413(b)(2)—The inspection must include any deficiencies that the qualified person who conducts the annual inspection determines under paragraph (c)(3)(ii) [Annual/Comprehensive] of this section must be monitored.

1926.1413(b)(4)—The inspection must be documented according to Sec. 1926.1412(e)(3) (monthly inspection documentation).

1926.1413(c)(1)—At least every 12 months, wire ropes in use on equipment must be inspected by a qualified person in accordance with paragraph (a) [Shift Inspection] of this section.

1926.1413(c)(2)—In addition, at least every 12 months, the wire ropes in use on equipment must be inspected by a qualified person. [Reference paragraph (c)(2) for specific information.]

1926.1413(c)(2)(iii)—Exception: In the event an inspection under paragraph (c)(2) [Annual/Comprehensive] of this section is not feasible due to existing set-up and configuration of the equipment (such as where an assist crane is needed) or due to site conditions (such as a dense urban setting), such inspections must be conducted as soon as it becomes feasible, but no longer than an additional 6 months for running ropes and, for standing ropes, at the time of disassembly.

1926.1413(c)(4)—The inspection must be documented according to Sec. 1926.1412(f)(7) (annual/comprehensive inspection documentation).
1926.1413(e)—All documents produced under this section must be available, during the applicable document retention period, to all persons who conduct inspections under this section.

Recordkeeping

1926.1413(a)(4)(ii)—If a deficiency in Category II (see paragraph (a)(2)(ii) [Apparent Deficiencies] of this section) is identified, operations involving use of the wire rope in question must be prohibited until:

1926.1413(a)(4)(ii)(A)—The employer complies with the wire rope manufacturer’s established criterion for removal from service or a different criterion that the wire rope manufacturer has approved in writing for that specific wire rope (see Sec. 1926.1417 [Operation]).

1926.1413(b)(4)—The inspection must be documented according to Sec. 1926.1412(e)(3) (monthly inspection documentation).

1926.1413(c)(4)—The inspection must be documented according to Sec. 1926.1412(f)(7) (annual/comprehensive inspection documentation).

1926.1413(e)—All documents produced under this section must be available, during the applicable document retention period, to all persons who conduct inspections under this section.

Competent Person

1926.1413(a)(1)—A competent person must begin a visual inspection prior to each shift the equipment is used, which must be completed before or during that shift. The inspection must consist of observation of wire ropes (running and standing) that are likely to be in use during the shift for apparent deficiencies, including those listed in paragraph (a)(2) [Apparent Deficiencies] of this section. Untwisting (opening) of wire rope or booming down is not required as part of this inspection.

1926.1413(a)(4)(i)—If a deficiency in Category I (see paragraph (a)(2)(i) [Apparent Deficiencies] of this section) is identified, an immediate determination must be made by the competent person as to whether the deficiency constitutes a safety hazard. If the deficiency is determined to constitute a safety hazard, operations involving use of the wire rope in question must be prohibited. [Reference paragraph (a)(4)(i) for specific information.]

Qualified Person

1926.1413(b)(2)—The inspection must include any deficiencies that the qualified person who conducts the annual inspection determines under paragraph (c)(3)(ii) [Annual/Comprehensive] of this section must be monitored.

1926.1413(c)(1)—At least every 12 months, wire ropes in use on equipment must be inspected by a qualified person in accordance with paragraph (a) [Shift Inspection] of this section.

1926.1413(c)(2)—In addition, at least every 12 months, the wire ropes in use on equipment must be inspected by a qualified person. [Reference paragraph (c)(2) for specific information.]

1926.1413(c)(3)—If a deficiency is identified, an immediate determination must be made by the qualified person as to whether the deficiency constitutes a safety hazard.

1926.1413(c)(3)(ii)—If the qualified person determines that, though not presently a safety hazard, the deficiency needs to be monitored, the employer must ensure that the deficiency is checked in the monthly inspections.

1926.1414—WIRE ROPE—SELECTION AND INSTALLATION CRITERIA

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom
cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

- Inspections and Tests—qualified person, records, monthly and annual inspections
- Recordkeeping—documentation
- Qualified Person—inspections

Inspections and Tests

1926.1414(e)(3)(i)—A qualified person must inspect the rope in accordance with Sec. 1926.1413(a) [Shift Inspection]. The rope must be used only if the qualified person determines that there are no deficiencies constituting a hazard. In making this determination, more than one broken wire in any one rope lay must be considered a hazard.

1926.1414(e)(3)(iii)—Each lift made under Sec. 1926.1414(e)(3) [Rotation Resistant Ropes] must be recorded in the monthly and annual inspection documents. Such prior uses must be considered by the qualified person in determining whether to use the rope again.

Recordkeeping

1926.1414(a)—Original equipment wire rope and replacement wire rope must be selected and installed in accordance with the requirements of this section. Selection of replacement wire rope must be in accordance with the recommendations of the wire rope manufacturer, the equipment manufacturer, or a qualified person.

1926.1414(e)(3)(iii)—Each lift made under Sec. 1926.1414(e)(3) [Rotation Resistant Ropes] must be recorded in the monthly and annual inspection documents. Such prior uses must be considered by the qualified person in determining whether to use the rope again.

Qualified Person

1926.1414(a)—Original equipment wire rope and replacement wire rope must be selected and installed in accordance with the requirements of this section. Selection of replacement wire rope must be in accordance with the recommendations of the wire rope manufacturer, the equipment manufacturer, or a qualified person.

1926.1414(e)(3)(i)—A qualified person must inspect the rope in accordance with Sec. 1926.1413(a) [Shift Inspection]. The rope must be used only if the qualified person determines that there are no deficiencies constituting a hazard. In making this determination, more than one broken wire in any one rope lay must be considered a hazard.

1926.1414(e)(3)(iii)—Each lift made under Sec. 1926.1414(e)(3) [Rotation Resistant Ropes] must be recorded in the monthly and annual inspection documents. Such prior uses must be considered by the qualified person in determining whether to use the rope again.

1926.1416—OPERATIONAL AIDS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as
a fixed jib, i.e., “hammerhead boom”); luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS
• Signs, Markings and Tags—markings

Signs, Markings and Tags

1926.1416(d)(1)(i)(B)—Clearly mark the boom hoist cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to keep the boom within the minimum allowable radius. In addition, install mirrors or remote video cameras and displays if necessary for the operator to see the mark.

1926.1416(d)(1)(i)(C)—Clearly mark the boom hoist cable (so that it can easily be seen by a spotter) at a point that will give the spotter sufficient time to signal the operator and have the operator stop the hoist to keep the boom within the minimum allowable radius.

1926.1416(d)(3)(i)—Telescopic boom cranes manufactured after February 28, 1992, must be equipped with a device which automatically prevents damage from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device(s) must prevent such damage at all points where two-blocking could occur.

Temporary alternative measures: Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter when extending the boom.

1926.1416(d)(3)(ii)(D)—Temporary alternative measures. Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter.

1926.1416(e)(3)(i)—Mark the boom with measured marks to calculate boom length.

1926.1416(e)(5)(ii)—Hoist drum rotation indicator if the equipment has a hoist drum not visible from the operator’s station. Temporary alternative measures: Mark the drum to indicate the rotation of the drum. In addition, install mirrors or remote video cameras and displays if necessary for the operator to see the mark.

1926.1417—OPERATION

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—procedures signed by registered professional engineer
• Recordkeeping—notification
• Training and Communications—notify employees, written documentation
• Competent Person—supervise
• Qualified Person—procedures
• Signs, Markings and Tags—notices
Programs, Policies and Procedures

1926.1417(b)(1)—Where the manufacturer procedures are unavailable, the employer must develop and ensure compliance with all procedures necessary for the safe operation of the equipment and attachments.

1926.1417(b)(3)—Procedures related to the capacity of the equipment must be developed and signed by a registered professional engineer familiar with the equipment.

1926.1417(c)(1)—The procedures applicable to the operation of the equipment, including rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions, and operator’s manual, must be readily available in the cab at all times for use by the operator.

Recordkeeping

1926.1417(b)(3)—Procedures related to the capacity of the equipment must be developed and signed by a registered professional engineer familiar with the equipment.

1926.1417(c)(1)—The procedures applicable to the operation of the equipment, including rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions, and operator’s manual, must be readily available in the cab at all times for use by the operator.

1926.1417(h)—Storm warning. When a local storm warning has been issued, the competent person must determine whether it is necessary to implement manufacturer recommendations for securing the equipment.

1926.1417(j)(1)—The operator must, in writing, promptly inform the person designated by the employer to receive such information and, where there are successive shifts, to the next operator; and

Training and Communications

1926.1417(j)—If equipment adjustments or repairs are necessary:

1926.1417(j)(1)—The operator must, in writing, promptly inform the person designated by the employer to receive such information and, where there are successive shifts, to the next operator; and

1926.1417(j)(2)—The employer must notify all affected employees, at the beginning of each shift, of the necessary adjustments or repairs and all alternative measures.

Competent Person

1926.1417(e)(1)—The operator must not leave the controls while the load is suspended, except where specific the following are met: [Reference paragraph (e)(1)(iii) for all elements.]

1926.1417(e)(1)(iii)—The competent person determines that it is safe to do so and implements measures necessary to restrain the boom hoist and telescoping, load, swing, and outrigger or stabilizer functions.

1926.1417(h)—Storm warning. When a local storm warning has been issued, the competent person must determine whether it is necessary to implement manufacturer recommendations for securing the equipment.

1926.1417(m)—If the competent person determines that there is a slack rope condition requiring re-spooling of the rope, it must be verified (before starting to lift) that the rope is seated on the drum and in the sheaves as the slack is removed.

1926.1417(n)—The competent person must adjust the equipment and/or operations to address the effect of wind, ice, and snow on equipment stability and rated capacity.

1926.1417(o)(3)—Load weight. The operator must verify that the load is within the rated capacity of the equipment by at least one of the following methods:
1926.1417(o)(3)(i)—The weight of the load must be determined from a source recognized by the industry (such as the load’s manufacturer), or by a calculation method recognized by the industry (such as calculating a steel beam from measured dimensions and a known per foot weight), or by other equally reliable means. In addition, when requested by the operator, this information must be provided to the operator prior to the lift.

1926.1417(u)(2)(i)—A competent person supervises the operation, determines if it is necessary to reduce rated capacity, and makes determinations regarding load position, boom location, ground support, travel route, overhead obstructions, and speed of movement necessary to ensure safety.

1926.1417(u)(2)(ii)—The determinations of the competent person required in paragraph (u)(2)(i) [Traveling With a Load] of this section are implemented.

Qualified Person

1926.1417(b)(2)—Procedures for the operational controls must be developed by a qualified person.

1926.1417(b)(3)—Procedures related to the capacity of the equipment must be developed and signed by a registered professional engineer familiar with the equipment.

1926.1417(f)(2)(i)—If there is a warning (tag-out or maintenance/do not operate) sign on the equipment or starting control, the operator must not activate the switch or start the equipment until the sign has been removed by a person authorized to remove it, or until the operator has it verified. [Reference paragraph (f)(2)(i) for all elements.]

1926.1417(f)(2)(ii)—If there is a warning (tag-out or maintenance/do not operate) sign on any other switch or control, the operator must not activate that switch or control until the sign has been removed by a person authorized to remove it, or until the operator has verified that the requirements in paragraphs (f)(2)(i)(A) and (B) [Response to “Do Not Operate”/Tag-Out Signs] of this section have been met.

1926.1417(j)—If equipment adjustments or repairs are necessary:

1926.1417(j)(1)—The operator must, in writing, promptly inform the person designated by the employer to receive such information and, where there are successive shifts, to the next operator; and

1926.1417(j)(2)—The employer must notify all affected employees, at the beginning of each shift, of the necessary adjustments or repairs and all alternative measures.

Signs, Markings and Tags

1926.1417(e)(1)(iv)—Barricades or caution lines, and notices, are erected to prevent all employees from entering the fall zone. No employees, including those listed in §§ 1926.1425(b)(1) through (3), Sec. 1926.1425(d) or Sec. 1926.1425(e) [Keeping Clear of the Load], are permitted in the fall zone.

1926.1417(f)(1)—Tagging out of service equipment/functions. Where the employer has taken the equipment out of service, a tag must be placed in the cab stating that the equipment is out of service and is not to be used. Where the employer has taken a function(s) out of service, a tag must be placed in a conspicuous position stating that the function is out of service and is not to be used.

1926.1417(f)(2)(i)—If there is a warning (tag-out or maintenance/do not operate) sign on the equipment or starting control, the operator must not activate the switch or start the equipment until the sign has been removed by a person authorized to remove it, or until the operator has it verified. [Reference paragraph (f)(2)(i) for all elements.]

1926.1417(f)(2)(ii)—If there is a warning (tag-out or maintenance/do not operate) sign on any other switch or control, the operator must not activate that switch or control until the sign has been removed by a person authorized to remove it,
or until the operator has verified that the requirements in paragraphs (f)(2)(i)(A) and (B) [Response to “Do Not Operate”/ Tag-Out Signs] of this section have been met.

1926.1417(w)—A tag or restraint line must be used if necessary to prevent rotation of the load that would be hazardous.

1926.1418—AUTHORITY TO STOP OPERATION

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Qualified Person—authority

Qualified Person

1926.1418—Whenever there is a concern as to safety, the operator must have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.

1926.1419—SIGNALS—GENERAL REQUIREMENTS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Training and Communications—hand signals
  • Qualified Person—signal person

Training and Communications

1926.1419(c)(2)—Non-standard hand signals. When using non-standard hand signals, the signal person, operator, and lift director (where there is one) must contact each other prior to the operation and agree on the non-standard hand signals that will be used.

Qualified Person

1926.1419(a)—A signal person must be provided in specific situations. [Reference paragraph (a) for specific information.]

1926.1420—SIGNALS—RADIO, TELEPHONE OR OTHER ELECTRONIC TRANSMISSION OF SIGNALS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to
hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**
- Inspections and Tests—tests before beginning operations

**Inspections and Tests**

**1926.1420(a)**—The device(s) used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable.

**1926.1421—SIGNALS—VOICE SIGNALS—ADDITIONAL REQUIREMENTS**

**Scope/Application:** This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**
- Training and Communications—prior to beginning operations

**Training and Communications**

**1926.1421(a)**—Prior to beginning operations, the operator, signal person and lift director (if there is one), must contact each other and agree on the voice signals that will be used. Once the voice signals are agreed upon, these workers need not meet again to discuss voice signals unless another worker is added or substituted, there is confusion about the voice signals, or a voice signal is to be changed.

**1926.1422—SIGNALS—HAND SIGNAL CHART**

**Scope/Application:** This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**
- Signs, Markings and Tags—posted hand signal charts

**Signs, Markings and Tags**

**1926.1422—Hand signal charts must be either posted** on the equipment or conspicuously posted in the vicinity of the hoisting operations.
**1926.1423—FALL PROTECTION**

**Scope/Application:** This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting; pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**

- Inspections and Tests—visual inspections, competent person
- Training and Communications—employee training
- Competent Person—visual inspections
- Qualified Person—determinations

**Inspections and Tests**

1926.1423(g)(2)(i)—Personal fall arrest systems must be anchored to any apparently substantial part of the equipment unless a competent person, from a visual inspection, without an engineering analysis, would conclude that the criteria in Sec. 1926.502(d)(15) [Personal Fall Arrest Systems] would not be met.

1926.1423(g)(2)(ii)—Positioning device systems must be anchored to any apparently substantial part of the equipment unless a competent person, from a visual inspection, without an engineering analysis, would conclude that the criteria in Sec. 1926.502(e)(2) [Positioning Device Systems] would not be met.

**Training and Communications**

1926.1423(k)—Training. The employer must train each employee who may be exposed to fall hazards while on, or hoisted by, equipment covered by this subpart. [Reference paragraph (k) for specific information.]

**Competent Person**

1926.1423(g)(2)(i)—Personal fall arrest systems must be anchored to any apparently substantial part of the equipment unless a competent person, from a visual inspection, without an engineering analysis, would conclude that the criteria in Sec. 1926.502(d)(15) [Personal Fall Arrest Systems] would not be met.

1926.1423(g)(2)(ii)—Positioning device systems must be anchored to any apparently substantial part of the equipment unless a competent person, from a visual inspection, without an engineering analysis, would conclude that the criteria in Sec. 1926.502(e)(2) [Positioning Device Systems] would not be met.

**Qualified Person**

1926.1423(j)(1)—A qualified person has determined that the set-up and rated capacity of the crane/derrick (including the hook, load line and rigging) meets or exceeds the requirements in Sec. 1926.502(d)(15) [Personal Fall Arrest Systems].

**1926.1424—WORK AREA CONTROL**

**Scope/Application:** This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck
cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting; pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—system for coordinating operations
• Training and Communications—training, employee instruction
• Qualified Person—authorized employees
• Signs, Markings and Tags—warning signs

Programs, Policies and Procedures

1926.1424(b)—Where any part of a crane/derrick is within the working radius of another crane/derrick, the controlling entity must institute a system to coordinate operations. If there is no controlling entity, the employer (if there is only one employer operating the multiple pieces of equipment), or employers, must institute such a system.

Training and Communications

1926.1424(a)(2)(i)—Train each employee assigned to work on or near the equipment (“authorized personnel”) in how to recognize struck-by and pinch/crush hazard areas posed by the rotating superstructure.

1926.1424(a)(2)(ii)—Erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas. Exception: When the employer can demonstrate that it is neither feasible to erect such barriers on the ground nor on the equipment, the hazard areas must be clearly marked by a combination of warning signs (such as “Danger—Swing/Crush Zone”) and high visibility markings on the equipment that identify the hazard areas. In addition, the employer must train each employee to understand what these markings signify.

1926.1424(a)(3)(i)—Before an employee goes to a location in the hazard area that is out of view of the operator, the employee (or someone instructed by the employee) must ensure that the operator is informed that he/she is going to that location.

1926.1424(a)(3)(ii)—Where the operator knows that an employee went to a location covered by paragraph (a)(1) [Swing Radius Hazards] of this section, the operator must not rotate the superstructure until the operator is informed in accordance with a pre-arranged system of communication that the employee is in a safe position.

Qualified Person

1926.1424(a)(2)(i)—Train each employee assigned to work on or near the equipment (“authorized personnel”) in how to recognize struck-by and pinch/crush hazard areas posed by the rotating superstructure.

Signs, Markings and Tags

1926.1424(a)(2)(ii)—Erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas. Exception: When the employer can demonstrate that it is neither feasible to erect such barriers on the ground nor on the equipment, the hazard areas must be clearly marked by a combination of warning signs (such as “Danger—Swing/Crush Zone”) and high visibility markings on the equipment that identify the hazard areas. In addition, the employer must train each employee to understand what these markings signify.

1926.1425—KEEPING CLEAR OF THE LOAD

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck
cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS
- Training and Communications—instructions
- Qualified Person—qualified rigger

Training and Communications

1926.1425(e)(2)—Only employees essential to the operation are permitted in the fall zone (but not directly under the load). An employee is essential to the operation if the employee is conducting one of the following operations and the employer can demonstrate it is infeasible for the employee to perform that operation from outside the fall zone: (1) Physically guide the load; (2) closely monitor and give instructions regarding the load’s movement; or (3) either detach it from or initially attach it to another component or structure (such as, but not limited to, making an initial connection or installing bracing).

Qualified Person

1926.1425(c)(3)—The materials must be rigged by a qualified rigger.

1926.1427—OPERATOR QUALIFICATION AND CERTIFICATION

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—monitoring
- Inspections and Tests—written and practical tests, audits
- Recordkeeping—retention requirements
- Certification—valid 5 years, qualifications, licensing
- Training and Communications—verbally, initial training
- Qualified Person—accreditations, auditors, literacy requirements

Programs, Policies and Procedures

1926.1427(c)—Option (2): Qualification by an audited employer program. The employer’s qualification of its employee must meet specific requirements. [Reference paragraph (c)(1) for specific information.]

1926.1427(c)(2)(i)—The written and practical tests must be administered under circumstances approved by the auditor as meeting nationally recognized test administration standards.

1926.1427(c)(6)(ii)—Valid for 5 years.

1926.1427(c)(3)—The employer program must be audited within 3 months of the beginning of the program and at least every 3 years thereafter.

1926.1427(c)(4)—The employer program must have testing procedures for re-qualification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) [Certification Criteria] of
this section. The re-qualification procedures must be audited in accordance with paragraphs (c)(1) and (2) [Option (2): Qualification by an Audited Employer Program] of this section.

1926.1427(f)(3)—Trainer. While operating the equipment, the operator-in-training must be continuously monitored by an individual (“operator’s trainer”) who meets specific requirements. [Reference paragraph (f)(3) for specific information.]

1926.1427(f)(4)—Continuous monitoring. The operator-in-training must be monitored by the operator’s trainer at all times, except for short breaks where specific requirements are met. [Reference paragraph (f)(4) for specific information.]

1926.1427(h)(1)(ii)—Demonstrates the ability to use the type of written manufacturer procedures applicable to the class/type of equipment for which the candidate is seeking certification.

Inspections and Tests

1926.1427(c)(2)(iv)—The audit must be conducted in accordance with nationally recognized auditing standards.

1926.1427(c)(3)—The employer program must be audited within 3 months of the beginning of the program and at least every 3 years thereafter.

1926.1427(c)(4)—The employer program must have testing procedures for re-qualification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (f)(1) and (2) [Certification Criteria] of this section. The re-qualification procedures must be audited in accordance with paragraphs (c)(1) and (2) [Option (2): Qualification by an Audited Employer Program] of this section.

1926.1427(c)(5)(ii)—The program is audited again within 180 days of the confirmation that the deficiency was corrected.

1926.1427(k)(2)(ii)—Where an employee assigned to operate machinery does not have the required knowledge or ability to operate the equipment safely, the employer must train that employee prior to operating the equipment. The employer must ensure that each operator is evaluated to confirm that he/she understands the information provided in the training.

Recordkeeping

1926.1427(b)—Option (1): Certification by an accredited crane operator testing organization. [Reference paragraph (b) (1) for specific information.]

1926.1427(b)(2)—An operator will be deemed qualified to operate a particular piece of equipment if the operator is certified under paragraph (b) [Option (1): Certification by an Accredited Crane Operator Testing Organization] of this section for that type and capacity of equipment or for higher-capacity equipment of that type. If no accredited testing agency offers certification examinations for a particular type and/or capacity of equipment, an operator will be deemed qualified to operate that equipment if the operator has been certified for the type/capacity that is most similar to that equipment and for which a certification examination is available. The operator’s certificate must state the type/capacity of equipment for which the operator is certified.

1926.1427(c)(2)(i)—The written and practical tests must be administered under circumstances approved by the auditor as meeting nationally recognized test administration standards.

1926.1427(c)(2)(iv)—The audit must be conducted in accordance with nationally recognized auditing standards.

1926.1427(c)(5)(iii)—The auditor files a documented report of the deficiency to the appropriate Regional Office of the Occupational Safety and Health Administration within 15 days of the auditor’s determination that there is a deficiency.

1926.1427(c)(5)(iv)—Records of the audits of the employer’s program are maintained by the auditor for three years and are made available by the auditor to the Secretary of Labor or the Secretary’s designated representative upon request.

1926.1427(h)(1)(i)—Passes a written demonstration of literacy relevant to the work.
1926.1427(h)(1)(ii)—Demonstrates the ability to use the type of written manufacturer procedures applicable to the class/type of equipment for which the candidate is seeking certification.

1926.1427(j)—Certification criteria. Qualifications and certifications must be based, at a minimum, on the following:

1926.1427(j)(1)—A determination through a written test. [Reference paragraph (j)(1) for specific information.]

Certification

1926.1427(a)—The employer must ensure that, prior to operating any equipment covered under subpart CC, the person is operating the equipment during a training period in accordance with paragraph (f) [Pre-Qualification/Certification Training Period] of this section, or the operator is qualified or certified to operate the equipment in accordance with specific information. [Reference paragraph (a) for specific information.]

1926.1427(a)(1)—When a non-military government entity issues operator licenses for equipment covered under subpart CC, and that government licensing program meets the requirements of paragraphs (e)(2) [Licensing Criteria] and (j) [Certification Criteria] of this section, the equipment operator must either be:

1926.1427(a)(1)(i)—Licensed by that government entity for operation of equipment within that entity’s jurisdiction; or

1926.1427(a)(1)(ii)—Qualified in compliance with paragraph (d) [Option (3): Qualification by the U.S. Military] of this section.

1926.1427(b)—Option (1): Certification by an accredited crane operator testing organization. [Reference paragraph (b) (1) for specific information.]

1926.1427(b)(2)—An operator will be deemed qualified to operate a particular piece of equipment if the operator is certified under paragraph (b) [Option (1): Certification by an Accredited Crane Operator Testing Organization] of this section for that type and capacity of equipment or for higher-capacity equipment of that type. If no accredited testing agency offers certification examinations for a particular type and/or capacity of equipment, an operator will be deemed qualified to operate that equipment if the operator has been certified for the type/capacity that is most similar to that equipment and for which a certification examination is available. The operator’s certificate must state the type/capacity of equipment for which the operator is certified.

1926.1427(b)(4)—A certification issued under this paragraph is valid for 5 years.

1926.1427(c)—Option (2): Qualification by an audited employer program. The employer’s qualification of its employee must meet specific requirements. [Reference paragraph (c)(1) for specific information.]

1926.1427(c)(2)(i)—The written and practical tests must be administered under circumstances approved by the auditor as meeting nationally recognized test administration standards.

1926.1427(c)(6)(ii)—Valid for 5 years.

1926.1427(d)—Option (3): Qualification by the U.S. military. [Reference paragraph (d) for specific information.]

1926.1427(e)—Option (4): Licensing by a government entity. [Reference paragraph (e) for specific information.]

1926.1427(e)(2)(i)—The requirements for obtaining the license include an assessment, by written and practical tests, of the operator applicant regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) [Certification Criteria] of this section.
1926.1427(e)(3)(ii)—Is valid for the period of time stipulated by the licensing department/office, but no longer than 5 years.

1926.1427(j)—Certification criteria. Qualifications and certifications must be based, at a minimum, on the following:

1926.1427(j)(1)—A determination through a written test. [Reference paragraph (j)(1) for specific information.]

Training and Communications

1926.1427(a)—The employer must ensure that, prior to operating any equipment covered under subpart CC, the person is operating the equipment during a training period in accordance with paragraph (f) [Pre-Qualification/Certification Training Period] of this section, or the operator is qualified or certified to operate the equipment in accordance with the following: [Reference paragraph (a) for specific information.]

1926.1427(f)(1)—The employer must provide each operator-in-training with sufficient training prior to operating the equipment to enable the operator-in-training to operate the equipment safely under limitations established by this section (including continuous monitoring) and any additional limitations established by the employer.

1926.1427(f)(3)(iv)—For equipment other than tower cranes: The operator’s trainer and the operator-in-training must be in direct line of sight of each other. In addition, they must communicate verbally or by hand signals. For tower cranes: The operator’s trainer and the operator-in-training must be in direct communication with each other.

1926.1427(f)(4)(ii)—Immediately prior to the break the operator’s trainer informs the operator-in-training of the specific tasks that the operator-in-training is to perform and limitations to which he/she must adhere during the operator trainer’s break.

1926.1427(k)(2)(ii)—Where an employee assigned to operate machinery does not have the required knowledge or ability to operate the equipment safely, the employer must train that employee prior to operating the equipment. The employer must ensure that each operator is evaluated to confirm that he/she understands the information provided in the training.

Qualified Person

1926.1427(a)(1)—When a non-military government entity issues operator licenses for equipment covered under subpart CC, and that government licensing program meets the requirements of paragraphs (e)(2) [Licensing Criteria] and (j) [Certification Criteria] of this section, the equipment operator must either be:

1926.1427(a)(1)(i)—Licensed by that government entity for operation of equipment within that entity’s jurisdiction; or

1926.1427(a)(1)(ii)—Qualified in compliance with paragraph (d) [Option (3): Qualification by the U.S. Military] of this section.

1926.1427(b)—Option (1): Certification by an accredited crane operator testing organization. [Reference paragraph (b)(1) for specific information.]

1926.1427(b)(2)—An operator will be deemed qualified to operate a particular piece of equipment if the operator is certified under paragraph (b) [Option (1): Certification by an Accredited Crane Operator Testing Organization] of this section for that type and capacity of equipment or for higher-capacity equipment of that type. If no accredited testing agency offers certification examinations for a particular type and/or capacity of equipment, an operator will be deemed qualified to operate that equipment if the operator has been certified for the type/capacity that is most similar to that equipment and for which a certification examination is available. The operator’s certificate must state the type/capacity of equipment for which the operator is certified.

1926.1427(b)(4)—A certification issued under this paragraph is valid for 5 years.

1926.1427(c)—Option (2): Qualification by an audited employer program. The employer’s qualification of its employee must meet specific requirements. [Reference paragraph (c)(1) for specific information.]
1926.1427(c)(2)(i)—The written and practical tests must be administered under circumstances approved by the auditor as meeting nationally recognized test administration standards.

1926.1427(c)(2)(ii)—The auditor must be certified to evaluate the administration of the written and practical tests by an accredited crane operator testing organization (see paragraph (b) [Option (1): Certification by an Accredited Crane Operator Testing Organization] of this section).

1926.1427(c)(4)—The employer program must have testing procedures for re-qualification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) [Certification Criteria] of this section. The re-qualification procedures must be audited in accordance with paragraphs (c)(1) and (2) [Option (2): Qualification by an Audited Employer Program] of this section.

1926.1427(c)(6)(ii)—Valid for 5 years.

1926.1427(d)—Option (3): Qualification by the U.S. military. [Reference paragraph (d) for specific information.]

1926.1427(e)—Option (4): Licensing by a government entity. [Reference paragraph (e) for specific information.]

1926.1427(e)(2)(i)—The requirements for obtaining the license include an assessment, by written and practical tests, of the operator applicant regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) [Certification Criteria] of this section.

1926.1427(e)(3)(ii)—Is valid for the period of time stipulated by the licensing department/office, but no longer than 5 years.

1926.1427(f)(3)—Trainer. While operating the equipment, the operator-in-training must be continuously monitored by an individual (“operator’s trainer”) who meets specific requirements. [Reference paragraph (f)(3) for specific information.]

1926.1427(j)—Certification criteria. Qualifications and certifications must be based, at a minimum, on the following:

1926.1427(j)(1)—A determination through a written test. [Reference paragraph (j)(1) for specific information.]

1926.1428—SIGNAL PERSON QUALIFICATIONS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Inspections and Tests—oral, written, practical tests
• Recordkeeping—qualifications documented
• Training and Communications—retrain
• Qualified Person—evaluation

Inspections and Tests

1926.1428(c)(5)—Demonstrate that he/she meets the requirements in paragraphs (c)(1) through (4)—[Qualification Requirements] of this section through an oral or written test, and through a practical test.
Recordkeeping

1926.1428(a)—The employer of the signal person must ensure that each signal person meets the Qualification Requirements (paragraph (c) of this section) prior to giving any signals. This requirement must be met by using either Option (1) or Option (2) of this section.

1926.1428(a)(1)—Option (1)—Third party qualified evaluator. The signal person has documentation from a third party qualified evaluator (see Qualified Evaluator (third party), Sec. 1926.1401 [Definition]) showing that the signal person meets the Qualification Requirements (paragraph (c) of this section).

1926.1428(a)(2)—Option (2)—Employer’s qualified evaluator. The employer’s qualified (see Qualified Evaluator (not a third party), Sec. 1926.1401 [Definition]) evaluator assesses the individual and determines that the individual meets the Qualification Requirements (see paragraph (c) of this section) and provides documentation of that determination. An assessment by an employer’s qualified evaluator under this option is not portable—other employers are not permitted to use it to meet the requirements of this section.

1926.1428(a)(3)—The employer must make the documentation for whichever option is used available at the site while the signal person is employed by the employer. The documentation must specify each type of signaling (e.g. hand signals, radio signals, etc.) for which the signal person meets the requirements of paragraph (c) [Qualification Requirements] of this section.

1926.1428(c)(5)—Demonstrate that he/she meets the requirements in paragraphs (c)(1) through (4)—[Qualification Requirements] of this section through an oral or written test, and through a practical test.

Training and Communications

1926.1428(b)—If subsequent actions by the signal person indicate that the individual does not meet the Qualification Requirements (see paragraph (c) of this section), the employer must not allow the individual to continue working as a signal person until re-training is provided and a re-assessment is made in accordance with paragraph (a) [Qualification Requirements] of this section that confirms that the individual meets the Qualification Requirements.

Qualified Person

1926.1428(a)(1)—Option (1)—Third party qualified evaluator. The signal person has documentation from a third party qualified evaluator (see Qualified Evaluator (third party), Sec. 1926.1401 [Definition]) showing that the signal person meets the Qualification Requirements (paragraph (c) of this section).

1926.1428(a)(2)—Option (2)—Employer’s qualified evaluator. The employer’s qualified (see Qualified Evaluator (not a third party), Sec. 1926.1401 [Definition]) evaluator assesses the individual and determines that the individual meets the Qualification Requirements (see paragraph (c) of this section) and provides documentation of that determination. An assessment by an employer’s qualified evaluator under this option is not portable—other employers are not permitted to use it to meet the requirements of this section.

1926.1428(c)(5)—Demonstrate that he/she meets the requirements in paragraphs (c)(1) through (4)—[Qualification Requirements] of this section through an oral or written test, and through a practical test.

1926.1429—QUALIFICATIONS OF MAINTENANCE & REPAIR EMPLOYEES

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as
a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

- Qualified Person

Qualified Person

1926.1429(b)—Maintenance and repair personnel must meet the definition of a qualified person with respect to the equipment and maintenance/repair tasks performed.

1926.1430—TRAINING

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—evaluations, practices, procedures
- Recordkeeping—certification
- Certification—qualifications
- Training and Communications—initial and retraining
- Competent Person—trained
- Qualified Person—trained
- Signs, Markings and Tags—tags

Programs, Policies and Procedures

1926.1430(c)(4)—The employer must train each operator of the equipment covered by this subpart in the specific practices. [Reference paragraph (c)(4) for specific information.]

1926.1430(f)—Tag-out. The employer must train each operator and each additional employee authorized to start/energize equipment or operate equipment controls (such as maintenance and repair employees), in the tag-out and start-up procedures in §§ 1926.1417(f) and (g) [Operation].

1926.1430(g)(1)—The employer must evaluate each employee required to be trained under this subpart to confirm that the employee understands the information provided in the training.

Recordkeeping

1926.1430(c)(1)—Operators-in-Training for equipment where certification or qualification is required by this subpart. The employer must train each operator-in-training in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification]. The employer must provide re-training if the operator-in-training does not pass a qualification or certification test.

1926.1430(c)(2)—Transitional Period. During the four-year phase-in period for operator certification or qualification, as provided in Sec. 1926.1427(k) [Operator Qualification and Certification], employers must train each operator who has not yet been certified or qualified in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification].
Certification

1926.1430(c)(1)—Operators-in-Training for equipment where certification or qualification is required by this subpart. The employer must train each operator-in-training in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification]. The employer must provide re-training if the operator-in-training does not pass a qualification or certification test.

1926.1430(c)(2)— Transitional Period. During the four-year phase-in period for operator certification or qualification, as provided in Sec. 1926.1427(k) [Operator Qualification and Certification], employers must train each operator who has not yet been certified or qualified in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification].

Training and Communications

1926.1430(a)—Overhead powerlines. The employer must train each employee specified in Sec. 1926.1408(g) [Power Line Safety (Up to 350 kV)—Equipment Operations] and Sec. 1926.1410(m) [Power Line Safety (All Voltages)—Equipment Operations Closer Than the Table A Zone] in the topics listed in Sec. 1926.1408(g) [Training].

1926.1430(b)—Signal persons. The employer must train each employee who will be assigned to work as a signal persons who does not meet the requirements of Sec. 1926.1428(c) [Signal Person Qualifications] in the areas addressed in that paragraph.

1926.1430(c)(1)—Operators-in-Training for equipment where certification or qualification is required by this subpart. The employer must train each operator-in-training in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification]. The employer must provide re-training if the operator-in-training does not pass a qualification or certification test.

1926.1430(c)(2)— Transitional Period. During the four-year phase-in period for operator certification or qualification, as provided in Sec. 1926.1427(k) [Operator Qualification and Certification], employers must train each operator who has not yet been certified or qualified in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification].

1926.1430(c)(4)—The employer must train each operator of the equipment covered by this subpart in the specific practices. [Reference paragraph (c)(4) for specific information.]

1926.1430(d)—Competent persons and qualified persons. The employer must train each competent person and each qualified person regarding the requirements of this subpart applicable to their respective roles.

1926.1430(e)—Crush/pinch points. The employer must train each employee who works with the equipment to keep clear of holes, and crush/pinch points and the hazards addressed in Sec. 1926.1424 (Work area control).

1926.1430(f)—Tag-out. The employer must train each operator and each additional employee authorized to start/energize equipment or operate equipment controls (such as maintenance and repair employees), in the tag-out and start-up procedures in §§ 1926.1417(f) and (g) [Operation].

1926.1430(g)(1)—The employer must evaluate each employee required to be trained under this subpart to confirm that the employee understands the information provided in the training.

1926.1430(g)(2)—The employer must provide refresher training in relevant topics for each employee when, based on the conduct of the employee or an evaluation of the employee’s knowledge, there is an indication that retraining is necessary.

Competent Person

1926.1430(d)—Competent persons and qualified persons. The employer must train each competent person and each qualified person regarding the requirements of this subpart applicable to their respective roles.
Qualified Person

1926.1430(c)(1)—**Operators-in-Training** for equipment where **certification** or qualification is required by this subpart. The employer must train each operator-in-training in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification]. The employer must provide re-training if the operator-in-training does not pass a qualification or **certification** test.

1926.1430(c)(2)—**Transitional Period.** During the four-year phase-in period for operator **certification** or qualification, as provided in Sec. 1926.1427(k) [Operator Qualification and Certification], employers must train each operator who has not yet been **certified** or qualified in the areas addressed in Sec. 1926.1427(j) [Operator Qualification and Certification].

1926.1430(d)—Competent persons and qualified persons. The employer must train each competent person and each qualified person regarding the requirements of this subpart applicable to their respective roles.

1926.1430(f)—**Tag-out.** The employer must train each operator and each additional employee authorized to start/energize equipment or operate equipment controls (such as maintenance and repair employees), in the **tag-out** and start-up procedures in §§ 1926.1417(f) and (g) [Operation].

Signs, Markings and Tags

1926.1430(f)—**Tag-out.** The employer must train each operator and each additional employee authorized to start/energize equipment or operate equipment controls (such as maintenance and repair employees), in the **tag-out** and start-up procedures in §§ 1926.1417(f) and (g) [Operation].

**1926.1431—HOISTING PERSONNEL**

**Scope/Application:** This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

**STANDARD HIGHLIGHTS**

- Inspections and Tests—competent person, visual inspections, proof tests, trial lifts
- Training and Communications—pre-lift meetings, communications
- Competent Person—inspections, determinations
- Qualified Person—determinations, designing
- Signs, Markings and Tags—posting, markings

**Inspections and Tests**

1926.1431(h)(1)—A trial lift with the unoccupied personnel platform loaded at least to the anticipated liftweight must be made from ground level, or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned. Where there is more than one location to be reached from a single set-up position, either individual trial lifts for each location, or a single trial lift, in which the platform is moved sequentially to each location, must be performed; the method selected must be the same as the method that will be used to hoist the personnel.

1926.1431(h)(2)—The trial lift must be performed immediately prior to each shift in which personnel will be hoisted. In addition, the trial lift must be repeated prior to hoisting employees in certain circumstances. [Reference paragraph (h)(2) for specific information.]

1926.1431(h)(3)—The **competent person** must determine specific issues relating to trial lift and inspection. [Reference paragraph (h)(3) for specific information.]
1926.1431(h)(4)(i)—Conduct a visual inspection of the equipment, base support or ground, and personnel platform, to determine whether the trial lift has exposed any defect or problem or produced any adverse effect.

1926.1431(h)(5)(i)—The platform must be hoisted a few inches with the personnel and materials/tools on board and inspected by a competent person to ensure that it is secure and properly balanced.

1926.1431(h)(5)(ii)(D)—If the load rope is slack, the hoisting system must be inspected to ensure that all ropes are properly seated on drums and in sheaves.

1926.1431(j)(1)—At each jobsite, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging must be proof tested to 125 percent of the platform’s rated capacity. The proof test may be done concurrently with the trial lift.

1926.1431(j)(3)—After proof testing, a competent person must inspect the platform and rigging to determine if the test has been passed. If any deficiencies are found that pose a safety hazard, the platform and rigging must not be used to hoist personnel unless the deficiencies are corrected, the test is repeated, and a competent person determines that the test has been passed. (See Sec. 1926.1417 for tag-out and related requirements.)

1926.1431(j)(4)—Personnel hoisting must not be conducted until the competent person determines that the platform and rigging have successfully passed the proof test.

1926.1431(k)(12)(ii)(E)—A complete trial run must be performed to test the route of travel before employees are allowed to occupy the platform. This trial run can be performed at the same time as the trial lift required by paragraph (h) [Trial Lift and Inspection] of this section which tests the lift route.

Training and Communications

1926.1431(m)—Pre-lift meeting. A pre-lift meeting must be: [Reference paragraph (m) for more information.]

1926.1431(m)(3)—Held prior to the trial lift at each new work location, and must be repeated for any employees newly assigned to the operation.

1926.1431(p)(2)—For lattice boom cranes: Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter who is in direct communication with the operator to inform the operator when this point is reached. For telescopic boom cranes: Clearly mark the cable (so that it can be easily seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter who is in direct communication with the operator to inform the operator when this point is reached.

Competent Person

1926.1431(h)(2)(ii)—The lift route is changed, unless the competent person determines that the new route presents no new factors affecting safety.

1926.1431(h)(3)—The competent person must determine specific issues relating to trial lift and inspection. [Reference paragraph (h)(3) for specific information.]

1926.1431(h)(4)—Immediately after the trial lift, the competent person must determine specific issues relating to trial lift and inspection. [Reference paragraph (h)(4) for specific information.]

1926.1431(h)(5)(i)—The platform must be hoisted a few inches with the personnel and materials/tools on board and inspected by a competent person to ensure that it is secure and properly balanced.

1926.1431(h)(5)(ii)—Conditions must be determined by a competent person to exist before the lift of personnel proceeds. [Reference paragraph (h)(5)(ii) for specific information.]
1926.1431(j)(3)—After proof testing, a competent person must inspect the platform and rigging to determine if the test has been passed. If any deficiencies are found that pose a safety hazard, the platform and rigging must not be used to hoist personnel unless the deficiencies are corrected, the test is repeated, and a competent person determines that the test has been passed. (See Sec. 1926.1417 for tag-out and related requirements.)

1926.1431(j)(4)—Personnel hoisting must not be conducted until the competent person determines that the platform and rigging have successfully passed the proof test.

Qualified Person

1926.1431(e)(1)—The equipment must be uniformly level, within one percent of level grade, and located on footing that a qualified person has determined to be sufficiently firm and stable.

1926.1431(e)(1)—A qualified person familiar with structural design must design the personnel platform and attachment/suspension system used for hoisting personnel.

1926.1431(k)(7)(i)—The occupant using the controls in the platform must be a qualified person with respect to their use, including the safe limitations of the equipment and hazards associated with its operation.

1926.1431(k)(8)(i)—Wind. When wind speed (sustained or gusts) exceeds 20 mph at the personnel platform, a qualified person must determine if, in light of the wind conditions, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated).

1926.1431(k)(8)(ii)—Other weather and environmental conditions. A qualified person must determine if, in light of indications of dangerous weather conditions, or other impending or existing danger, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated).

Signs, Markings and Tags

1926.1431(d)(5)(iv)—Equipment with telescoping booms must be equipped with a device to indicate the boom’s extended length clearly to the operator, or must have measuring marks on the boom.

1926.1431(e)(12)—The weight of the platform and its rated capacity must be conspicuously posted on the platform with a plate or other permanent marking.

1926.1431(p)(2)—For lattice boom cranes: Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter who is in direct communication with the operator to inform the operator when this point is reached. For telescopic boom cranes: Clearly mark the cable (so that it can be easily seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter who is in direct communication with the operator to inform the operator when this point is reached.

1926.1432—MULTIPLE-CRANE/DERRECK LIFTS—SUPPLEMENTAL REQUIREMENTS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS
• Programs, Policies and Procedures—qualified person, development of plan
• Training and Communications—meeting to review plan
• Competent Person—determination
• Qualified Person—plan development, determinations

Programs, Policies and Procedures

1926.1432(a)—Plan development. Before beginning a crane/derrick operation in which more than one crane/derrick will be supporting the load, the operation must be planned. The planning must meet the specific requirements. [Reference paragraph (a) for more information.]

1926.1432(a)(n)—The plan must be designed to ensure that the requirements of this subpart are met.

Training and Communications

1926.1432(b)(2)—The lift director must review the plan in a meeting with all workers who will be involved with the operation.

Competent Person

1926.1432(b)(1)—The multiple-crane/derrick lift must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons (lift director).

Qualified Person

1926.1432(a)(1)—The plan must be developed by a qualified person.

1926.1432(a)(3)—Where the qualified person determines that engineering expertise is needed for the planning, the employer must ensure that it is provided.

1926.1432(b)(1)—The multiple-crane/derrick lift must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons (lift director).

1926.1433—DESIGN, CONSTRUCTION AND TESTING

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

• Inspections and Tests—prototype testing, physical testing
• Recordkeeping—documentation
• Qualified Person—determinations
• Signs, Markings and Tags—markings

Inspections and Tests

1926.1433(c)—Prototype testing: mobile (including crawler and truck) and locomotive cranes manufactured on or after November 8, 2010 must meet the prototype testing requirements in Test Option A or Test Option B of this section. Tower cranes manufactured on or after November 8, 2010 must meet the prototype testing requirements in BS EN 14439:2006 (incorporated by reference, see Sec. 1926.6).
Note: Prototype testing of crawler, locomotive and truck cranes manufactured prior to November 8, 2010 must conform to paragraph (a) of this section.

1926.1433(c)(2)—Test Option B. The testing and verification requirements of BS EN 13000:2004 (incorporated by reference, see 1926.6) must be met. In applying BS EN 13000:2004, additional requirements must be met. [Reference paragraph (c)(2) for more information.]

1926.1433(c)(2)(iii)—Analysis verification. The physical testing requirements under SAE J1063 (Nov. 1993) (incorporated by reference, see 1926.6) and SAE J987 (Jun. 2003) (incorporated by reference, see 1926.6) must be met unless the reliability of the analysis methodology (computer modeling) has been demonstrated by a documented history of verification through strain gauge measuring or strain gauge measuring in combination with other physical testing.

Recordkeeping

1926.1433(c)(2)(iii)—Analysis verification. The physical testing requirements under SAE J1063 (Nov. 1993) (incorporated by reference, see 1926.6) and SAE J987 (Jun. 2003) (incorporated by reference, see 1926.6) must be met unless the reliability of the analysis methodology (computer modeling) has been demonstrated by a documented history of verification through strain gauge measuring or strain gauge measuring in combination with other physical testing.

1926.1433(e)—The employer’s obligations under paragraphs (a) through (c) and (d)(7) through (13) [Design, Construction and Testing] of this section are met where the equipment has not changed (except in accordance with Sec. 1926.1434 [Equipment Modifications]) and it can refer to documentation from the manufacturer showing that the equipment has been designed, constructed and tested in accordance with those paragraphs.

Qualified Person

1926.1433(d)(4)(ii)(A)—A qualified person has determined that it is safer to hoist and place the load without latches (or with the latches removed/tied-back).

Signs, Markings and Tags

1926.1433(d)(3)—Hook and ball assemblies and load blocks must be marked with their rated capacity and weight.

1926.1434—EQUIPMENT MODIFICATIONS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

STANDARD HIGHLIGHTS

- Recordkeeping—written manufacturer approval, modification records
- Qualified Person—registered professional engineer
- Signs, Markings and Tags—tags

Recordkeeping

1926.1434(a)(1)(i)—The manufacturer approves the modifications/additions in writing.

1926.1434(a)(1)(ii)—The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition.
1926.1434(a)(2)—Manufacturer refusal to review request. The manufacturer is provided a detailed description of the proposed modification/addition is asked to approve the modification/addition, but it declines to review the technical merits of the proposal or fails, within 30 days, to acknowledge the request or initiate the review, plus specific items are met. [Reference paragraph (a)(2) for more information.]

1926.1434(a)(2)(i)—A registered professional engineer who is a qualified person with respect to the equipment involved:

1926.1434(a)(2)(i)(A)—Approves the modification/addition and specifies the equipment configurations to which that approval applies, and

1926.1434(a)(2)(i)(B)—Modifies load charts, procedures, instruction manuals and instruction plates/tags/decals as necessary to accord with the modification/addition.

1926.1434(b)—Modifications or additions which affect the capacity or safe operation of the equipment are prohibited where the manufacturer, after a review of the technical safety merits of the proposed modification/addition, rejects the proposal and explains the reasons for the rejection in a written response. If the manufacturer rejects the proposal but does not explain the reasons for the rejection in writing, the employer may treat this as a manufacturer refusal to review the request under paragraph (a)(2) [Manufacturer Refusal to Review Request] of this section.

Qualified Person

1926.1434(a)(2)(i)—A registered professional engineer who is a qualified person with respect to the equipment involved:

1926.1434(a)(2)(i)(A)—Approves the modification/addition and specifies the equipment configurations to which that approval applies, and

1926.1434(a)(2)(i)(B)—Modifies load charts, procedures, instruction manuals and instruction plates/tags/decals as necessary to accord with the modification/addition.

1926.1434(b)—Modifications or additions which affect the capacity or safe operation of the equipment are prohibited where the manufacturer, after a review of the technical safety merits of the proposed modification/addition, rejects the proposal and explains the reasons for the rejection in a written response. If the manufacturer rejects the proposal but does not explain the reasons for the rejection in writing, the employer may treat this as a manufacturer refusal to review the request under paragraph (a)(2) [Manufacturer Refusal to Review Request] of this section.

Signs, Markings and Tags

1926.1434(a)(1)(ii)—The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition.

1926.1434(a)(2)(i)(B)—Modifies load charts, procedures, instruction manuals and instruction plates/tags/decals as necessary to accord with the modification/addition.

1926.1435—TOWER CRANES

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.
Additional Note: This section contains supplemental requirements for tower cranes; all sections of this subpart apply to tower cranes unless specified otherwise.

STANDARD HIGHLIGHTS

• Programs, Policies and Procedures—manufacturer procedures and instructions, procedures
• Inspections and Tests—qualified person, annual, post erection, and pre-erection inspections
• Recordkeeping—documentation, inspections, load tester
• Certification—certified weights
• Competent Person—manufacturer’s instructions
• Qualified Person—inspections, registered professional engineer

Programs, Policies and Procedures

1926.1435(b)(2)—Dangerous areas (self-erecting tower cranes). In addition to the requirements in Sec. 1926.1404(E) [Protecting Assembly/Disassembly Crew Members Out of Operator View], for self-erecting tower cranes, the following applies: Employees must not be in or under the tower, jib, or rotating portion of the crane during erecting, climbing and dismantling operations until the crane is secured in a locked position and the competent person in charge indicates it is safe to enter this area, unless the manufacturer’s instructions direct otherwise and only the necessary personnel are permitted in this area.

1926.1435(b)(7)—Climbing procedures. Prior to, and during, all climbing procedures (including inside climbing and top climbing), the employer must do specific items. [Reference paragraph (b)(7) for more information.]

1926.1435(f)(3)(ii)—The load test must be conducted in accordance with the manufacturer’s instructions when available. Where these instructions are unavailable, the test must be conducted in accordance with written load test procedures developed by a registered professional engineer familiar with the type of equipment involved.

Inspections and Tests

1926.1435(f)(2)—Pre-erection inspection. Before each crane component is erected, it must be inspected by a qualified person for damage or excessive wear.

1926.1435(f)(2)(i)—The qualified person must pay particular attention to components that will be difficult to inspect thoroughly during shift inspections.

1926.1435(f)(2)(ii)—If the qualified person determines that a component is damaged or worn to the extent that it would create a safety hazard if used on the crane, that component must not be erected on the crane unless it is repaired and, upon reinspection by the qualified person, found to no longer create a safety hazard.

1926.1435(f)(2)(iii)—If the qualified person determines that, though not presently a safety hazard, the component needs to be monitored, the employer must ensure that the component is checked in the monthly inspections. Any such determination must be documented, and the documentation must be available to any individual who conducts a monthly inspection.

1926.1435(f)(3)—Post-erection inspection. In addition to the requirements in Sec. 1926.1412(c) [Inspections], specific requirements must be met. [Reference paragraph (f)(3) for more information.]

1926.1435(f)(3)(i)—A load test using certified weights, or scaled weights using a certified scale with a current certificate of calibration, must be conducted after each erection.

1926.1435(f)(3)(ii)—The load test must be conducted in accordance with the manufacturer’s instructions when available. Where these instructions are unavailable, the test must be conducted in accordance with written load test procedures developed by a registered professional engineer familiar with the type of equipment involved.

1926.1435(f)(5)—Annual. In addition to the items that must be inspected under Sec. 1926.1412(f) [Inspections], all turntable and tower bolts must be inspected for proper condition and torque.
Recordkeeping

1926.1435(b)(2)—Dangerous areas (self-erecting tower cranes). In addition to the requirements in Sec. 1926.1404(E) [Protecting Assembly/Disassembly Crew Members Out of Operator View], for self-erecting tower cranes, the following applies: Employees must not be in or under the tower, jib, or rotating portion of the crane during erecting, climbing and dismantling operations until the crane is secured in a locked position and the competent person in charge indicates it is safe to enter this area, unless the manufacturer’s instructions direct otherwise and only the necessary personnel are permitted in this area.

1926.1435(b)(5)—Plumb tolerance. Towers must be erected plumb to the manufacturer’s tolerance and verified by a qualified person. Where the manufacturer does not specify plumb tolerance, the crane tower must be plumb to a tolerance of at least 1:500 (approximately 1 inch in 40 feet).

1926.1435(e)(5)—Category I operational aids and alternative measures. Operational aids listed in this paragraph that are not working properly must be repaired no later than 7 calendar days after the deficiency occurs. Exception: If the employer documents that it has ordered the necessary parts within 7 calendar days of the occurrence of the deficiency, the repair must be completed within 7 calendar days after receipt of the parts.

1926.1435(e)(6)—Category II operational aids and alternative measures. Operational aids listed in this paragraph that are not working properly must be repaired no later than 30 calendar days after the deficiency occurs. Exception: If the employer documents that it has ordered the necessary parts within 7 calendar days of the occurrence of the deficiency, and the part is not received in time to complete the repair in 30 calendar days, the repair must be completed within 7 calendar days of receipt of the parts.

1926.1435(f)(2)(iii)—If the qualified person determines that, though not presently a safety hazard, the component needs to be monitored, the employer must ensure that the component is checked in the monthly inspections. Any such determination must be documented, and the documentation must be available to any individual who conducts a monthly inspection.

1926.1435(f)(3)(i)—A load test using certified weights, or scaled weights using a certified scale with a current certificate of calibration, must be conducted after each erection.

1926.1435(f)(3)(ii)—The load test must be conducted in accordance with the manufacturer’s instructions when available. Where these instructions are unavailable, the test must be conducted in accordance with written load test procedures developed by a registered professional engineer familiar with the type of equipment involved.

Certification

1926.1435(f)(3)(i)—A load test using certified weights, or scaled weights using a certified scale with a current certificate of calibration, must be conducted after each erection.

Competent Person

1926.1435(b)(2)—Dangerous areas (self-erecting tower cranes). In addition to the requirements in Sec. 1926.1404(E) [Protecting Assembly/Disassembly Crew Members Out of Operator View], for self-erecting tower cranes, the following applies: Employees must not be in or under the tower, jib, or rotating portion of the crane during erecting, climbing and dismantling operations until the crane is secured in a locked position and the competent person in charge indicates it is safe to enter this area, unless the manufacturer’s instructions direct otherwise and only the necessary personnel are permitted in this area.

Qualified Person

1926.1435(b)(4)(iii)—Wind speed. Wind must not exceed the speed recommended by the manufacturer or, where manufacturer does not specify this information, the speed determined by a qualified person.
1926.1435(b)(5)—Plumb tolerance. Towers must be erected plumb to the manufacturer’s tolerance and verified by a qualified person. Where the manufacturer does not specify plumb tolerance, the crane tower must be plumb to a tolerance of at least 1:500 (approximately 1 inch in 40 feet).

1926.1435(e)(6)(v)—Wind speed indicator. A device must be provided to display the wind speed and must be mounted above the upper rotating structure on tower cranes. On self erecting cranes, it must be mounted at or above the jib level. Temporary alternative measures: Use of wind speed information from a properly functioning indicating device on another tower crane on the same site, or a qualified person estimates the wind speed.

1926.1435(f)(2)—Pre-erection inspection. Before each crane component is erected, it must be inspected by a qualified person for damage or excessive wear.

1926.1435(f)(2)(i)—The qualified person must pay particular attention to components that will be difficult to inspect thoroughly during shift inspections.

1926.1435(f)(2)(ii)—If the qualified person determines that a component is damaged or worn to the extent that it would create a safety hazard if used on the crane, that component must not be erected on the crane unless it is repaired and, upon reinspection by the qualified person, found to no longer create a safety hazard.

1926.1435(f)(2)(iii)—If the qualified person determines that, though not presently a safety hazard, the component needs to be monitored, the employer must ensure that the component is checked in the monthly inspections. Any such determination must be documented, and the documentation must be available to any individual who conducts a monthly inspection.

1926.1435(f)(3)(ii)—The load test must be conducted in accordance with the manufacturer’s instructions when available. Where these instructions are unavailable, the test must be conducted in accordance with written load test procedures developed by a registered professional engineer familiar with the type of equipment involved.

1926.1436—DERRICKS

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Additional Note: This section contains supplemental requirements for derricks, whether temporarily or permanently mounted, all sections of this subpart apply to derricks unless specified otherwise. A derrick is powered equipment consisting of a mast or equivalent member that is held at or near the end by guys or braces, with or without a boom, and its hoisting mechanism. The mast/equivalent member and/or the load is moved by the hoisting mechanism (typically base-mounted) and operating ropes. Derricks include: A-frame, basket, breast, Chicago boom, gin pole (except gin poles used for erection of communication towers), guy, shearleg, stilleag, and variations of such equipment.

STANDARD HIGHLIGHTS

- Inspections and Tests—load testing prior to use, daily and annual inspections
- Recordkeeping—documentation, manufacturer information
- Training and Communications—qualifications, operator training
- Competent Person—load testing
- Qualified Person—inspections
- Signs, Markings and Tags—load chart posted
Inspections and Tests

1926.1436(e)(2)(iii)—Repaired or modified hoists. Hoists that have had repairs, modifications or additions affecting their capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted in accordance with paragraphs (e)(2)(ii) and (iv) [Hoists] of this section.

1926.1436(e)(2)(iv)(C)—The hoist must not be used unless a competent person determines that the test has been passed.

1926.1436(g)(1)(ii)—If using a rock or hairpin anchorage, the qualified person must determine if any special testing of the anchorage is needed. If so, it must be tested accordingly.

1926.1436(g)(2)—Functional test. Prior to initial use, new or reinstalled derricks must be tested by a competent person with no hook load to verify proper operation. [Reference paragraph (g)(2) for more information.]

1926.1436(g)(3)—Load test. Prior to initial use, new or reinstalled derricks must be load tested by a competent person. [Reference paragraph (g)(3) for more information.]

1926.1436(g)(3)(i)—Test loads must be at least 100% and no more than 110% of the rated capacity, unless otherwise recommended by the manufacturer or qualified person, but in no event must the test load be less than the maximum anticipated load.

1926.1436(g)(3)(iii)—The derrick must not be used unless the competent person determines that the test has been passed.

1926.1436(h)—Load testing repaired or modified derricks. Derricks that have had repairs, modifications or additions affecting the derrick’s capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted and documented in accordance with paragraph (g) [Post-Assembly Approval and Testing—New or Reinstalled Derricks] of this section.

1926.1436(p)—Inspections. In addition to the requirements in Sec. 1926.1412, additional items must be included in the inspections.

1926.1436(p)(1)—Daily: Guys for proper tension.

1926.1436(p)(2)—Annual. [Reference paragraph (p)(2) for more information.]

Recordkeeping

1926.1436(b)(3)(ii)—Non-permanent installations. For derricks that are not permanently installed, the load chart must be readily available at the job site to personnel responsible for the operation of the equipment.

1926.1436(c)(2)(ii)—Guy derricks must not be used unless the employer has the guy information from the manufacturer or a qualified person, when not available from the manufacturer. [Reference paragraph (c)(2)(ii) for more information.]

1926.1436(c)(2)(iii)—For guy derricks manufactured after December 18, 1970, in addition to the information required in paragraph (c)(2)(ii) [Guy Derricks] of this section, the employer must have guy information from the manufacturer or a qualified person, when not available from the manufacturer. [Reference paragraph (c)(2)(iii) for more information.]

1926.1436(d)(1)—Load anchoring data developed by the manufacturer or a qualified person must be used.

1926.1436(f)(3)(ii)—A load weight/capacity device that is not working properly must be repaired no later than 30 days after the deficiency occurs. Exception: If the employer documents that it has ordered the necessary parts within 7 days of the occurrence of the deficiency, and the part is not received in time to complete the repair in 30 days, the repair must be completed within 7 days of receipt of the parts.
1926.1436(g)(4)—Documentation. Tests conducted under this paragraph must be documented. The document must contain the date, test results and the name of the tester. The document must be retained until the derrick is re-tested or dismantled, whichever occurs first. All such documents must be available, during the applicable document retention period, to all persons who conduct inspections in accordance with Sec. 1926.1412 [Inspections].

1926.1436(h)—Load testing repaired or modified derricks. Derricks that have had repairs, modifications or additions affecting the derrick’s capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted and documented in accordance with paragraph (g) [Post-Assembly Approval and Testing—New or Reinstalled Derricks] of this section.

Training and Communications

1926.1436(q)—Qualification and Training. The employer must train each operator of a derrick on the safe operation of equipment the individual will operate. Section 1926.1427 (Operator qualification and certification) of this subpart does not apply.

Competent Person

1926.1436(e)(2)(iv)(C)—The hoist must not be used unless a competent person determines that the test has been passed.

1926.1436(g)(2)—Functional test. Prior to initial use, new or reinstalled derricks must be tested by a competent person with no hook load to verify proper operation. [Reference paragraph (g)(2) for more information.]

1926.1436(g)(3)—Load test. Prior to initial use, new or reinstalled derricks must be load tested by a competent person. [Reference paragraph (g)(3) for more information.]

1926.1436(g)(3)(iii)—The derrick must not be used unless the competent person determines that the test has been passed.

1926.1436(o)—Derrick operations must be supervised by a competent person.

Qualified Person

1926.1436(c)(2)(i)—The minimum number of guys must be 6, with equal spacing, except where a qualified person or derrick manufacturer approves variations from these requirements and revises the rated capacity to compensate for such variations.

1926.1436(c)(2)(ii)—Guy derricks must not be used unless the employer has the guy information from the manufacturer or a qualified person, when not available from the manufacturer. [Reference paragraph (c)(2)(ii) for more information.]

1926.1436(c)(2)(iii)—For guy derricks manufactured after December 18, 1970, in addition to the information required in paragraph (c)(2)(ii) [Guy Derricks] of this section, the employer must have guy information from the manufacturer or a qualified person, when not available from the manufacturer. [Reference paragraph (c)(2)(iii) for more information.]

1926.1436(d)(1)—Load anchoring data developed by the manufacturer or a qualified person must be used.

1926.1436(e)(2)(iii)—Repaired or modified hoists. Hoists that have had repairs, modifications or additions affecting their capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted in accordance with paragraphs (e)(2)(ii) and (iv) [Hoists] of this section.
1926.1436(g)(1)(i)—Anchorages, including the structure to which the derrick is attached (if applicable), must be approved by a qualified person.

1926.1436(g)(1)(ii)—If using a rock or hairpin anchorage, the qualified person must determine if any special testing of the anchorage is needed. If so, it must be tested accordingly.

1926.1436(g)(3)(i)—Test loads must be at least 100% and no more than 110% of the rated capacity, unless otherwise recommended by the manufacturer or qualified person, but in no event must the test load be less than the maximum anticipated load.

1926.1436(h)—Load testing repaired or modified derricks. Derricks that have had repairs, modifications or additions affecting the derrick’s capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted and documented in accordance with paragraph (g) [Post-Assembly Approval and Testing—New or Reinstalled Derricks] of this section.

1926.1436(q)—Qualification and Training. The employer must train each operator of a derrick on the safe operation of equipment the individual will operate. Section 1926.1427 (Operator qualification and certification) of this subpart does not apply.

Signs, Markings and Tags

1926.1436(b)(3)(i)—Permanent installations. For permanently installed derricks with fixed lengths of boom, guy, and mast, a load chart must be posted where it is visible to personnel responsible for the operation of the equipment.

1926.1437—FLOATING CRANES/DERRICKS AND LAND CRANES/DERRICKS ON BARGES

Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and selferecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Additional Note: This section contains supplemental requirements for floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation (i.e., vessel/flotation device). The sections of this subpart apply to floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation, unless specified otherwise. The requirements of this section do not apply when using jacked barges when the jacks are deployed to the river, lake, or sea bed and the barge is fully supported by the jacks.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—procedures, written design plan
- Inspections and Tests—shifts, monthly, annual inspections, documented inspections, qualified person
- Recordkeeping—retention requirements
- Training and Communications—on markings
- Competent Person—inspections
- Qualified Person—inspections
- Signs, Markings and Tags—load charts posted, markings

Programs, Policies and Procedures

1926.1437(n)(6)(i)—A marine engineer or registered professional engineer familiar with floating crane/derrick design develops and signs a written plan for the use of the mobile auxiliary crane.
Inspections and Tests

1926.1437(h)—Inspections. In addition to meeting the requirements of § 1926.1412 [Inspections] for inspecting the crane/derrick, the employer must inspect the barge, pontoons, vessel or other means of flotation used to support a floating crane/derrick or land crane/derrick. [Reference paragraph (h) for more information.]

1926.1437(h)(1)—Shift. For each shift inspection, the means used to secure/attach the equipment to the vessel/flotation device is in proper condition, including wear, corrosion, loose or missing fasteners, defective welds, and (when applicable) insufficient tension.

1926.1437(h)(2)—Monthly. [Reference paragraph (h)(2) for more information.]

1926.1437(h)(4)—Annual: external vessel/flotation device inspection. For each annual inspection:

1926.1437(h)(4)(i)—The external portion of the barge, pontoons, vessel or other means of flotation used is inspected annually by a qualified person who has expertise with respect to vessels/flotation devices and that the inspection includes specific items. [Reference paragraph (h)(4)(i) for more specific information.]

1926.1437(h)(4)(ii)—Rescue skiffs, lifelines, work vests, life preservers and ring buoys are inspected for proper condition.

1926.1437(h)(4)(iii)—If any deficiency is identified, an immediate determination is made by the qualified person whether the deficiency constitutes a hazard or, though not yet a hazard, needs to be monitored in the monthly inspections.

1926.1437(h)(4)(iii)(B)—If the qualified person determines that, though not presently a hazard, the deficiency needs to be monitored, the deficiency is checked in the monthly inspections.

1926.1437(h)(5)—Four-year: internal vessel/flotation device inspection. For each four-year inspection:

1926.1437(h)(5)(i)—A marine engineer, marine architect, licensed surveyor, or other qualified person who has expertise with respect to vessels/flotation devices surveys the internal portion of the barge, pontoons, vessel, or other means of flotation.

1926.1437(h)(5)(ii)—If the surveyor identifies a deficiency, an immediate determination is made by the surveyor as to whether the deficiency constitutes a hazard or, though not yet a hazard, needs to be monitored in the monthly or annual inspections, as appropriate.

1926.1437(h)(5)(ii)(B)—If the surveyor determines that, though not presently a hazard, the deficiency needs to be monitored, the deficiency is checked in the monthly or annual inspections, as appropriate.

1926.1437(h)(6)—Documentation. The monthly and annual inspections required in paragraphs (h)(2)—Monthly and (h)(4)—Annual of this section are documented in accordance with 1926.1412(e)(3)—Documentation and 1926.1412(f)(7)—Annual/Comprehensive, respectively, and that the four-year inspection required in paragraph (h)(5) of this section is documented in accordance with 1926.1412(f)(7)—Annual/Comprehensive, except that the documentation for that inspection must be retained for a minimum of 4 years. All such documents must be made available, during the applicable document retention period, to all persons who conduct inspections in accordance with 1926.1412—Inspections.

Recordkeeping

1926.1437(h)(6)—Documentation. The monthly and annual inspections required in paragraphs (h)(2)—Monthly and (h)(4)—Annual of this section are documented in accordance with 1926.1412(e)(3)—Documentation and 1926.1412(f)(7)—Annual/Comprehensive, respectively, and that the four-year inspection required in paragraph (h)(5) of this section is documented in accordance with 1926.1412(f)(7)—Annual/Comprehensive, except that the documentation for that inspection must be retained for a minimum of 4 years. All such documents must be made available, during the applicable document retention period, to all persons who conduct inspections in accordance with 1926.1412—Inspections.
When the manufacturer’s specifications and limitations are unavailable, the employer must ensure that the specifications and limitations established by a qualified person with respect to environmental, operational and in-transit loads for the barge, pontoons, vessel, or other means of flotation are not exceeded or violated.

If the equipment is employer-made, it must not be used unless the employer has documents demonstrating that the load charts and applicable parameters for use meet the requirements of paragraphs (m)(1) through (3) [Floating Cranes/Derricks] of this section. Such documents must be signed by a registered professional engineer who is a qualified person with respect to the design of this type of equipment (including the means of flotation).

Clearly mark the hazard areas by a combination of warning signs (such as, “Danger— Swing/Crush Zone”) and high visibility markings on the equipment that identify the hazard areas. In addition, the employer must train each employee to understand what these markings signify.

The shift and monthly inspections are conducted by a competent person, and:

If any deficiency is identified, an immediate determination is made by a qualified person whether the deficiency constitutes a hazard.

Wind speed and direction indicator. A competent person must determine if wind is a factor that needs to be considered; if wind needs to be considered, a wind speed and direction indicator must be used.

The shift and monthly inspections are conducted by a competent person, and:

If any deficiency is identified, an immediate determination is made by a qualified person whether the deficiency constitutes a hazard.

Annual: external vessel/flotation device inspection. For each annual inspection:

The external portion of the barge, pontoons, vessel or other means of flotation used is inspected annually by a qualified person who has expertise with respect to vessels/flotation devices and that the inspection includes specific items. [Reference paragraph (h)(4)(i) for more specific information.]

External evidence of leaks and structural damage; evidence of leaks and damage below the waterline may be determined through internal inspection of the vessel/flotation device.

Rescue skiffs, lifelines, work vests, life preservers and ring buoys are inspected for proper condition.

If any deficiency is identified, an immediate determination is made by the qualified person whether the deficiency constitutes a hazard, or, though not yet a hazard, needs to be monitored in the monthly inspections.

If the qualified person determines that the deficiency constitutes a hazard, the vessel/flotation device is removed from service until it has been corrected. See requirements in § 1926.1417(f) [Tagout].

If the qualified person determines that, though not presently a hazard, the deficiency needs to be monitored, the deficiency is checked in the monthly inspections.

Four-year: internal vessel/flotation device inspection. For each four-year inspection:
A marine engineer, marine architect, licensed surveyor, or other qualified person who has expertise with respect to vessels/flotation devices surveys the internal portion of the barge, pontoons, vessel, or other means of flotation.

If the surveyor identifies a deficiency, an immediate determination is made by the surveyor as to whether the deficiency constitutes a hazard or, though not yet a hazard, needs to be monitored in the monthly or annual inspections, as appropriate.

If the surveyor determines that, though not presently a hazard, the deficiency needs to be monitored, the deficiency is checked in the monthly or annual inspections, as appropriate.

When the manufacturer’s specifications and limitations are unavailable, the employer must ensure that the specifications and limitations established by a qualified person with respect to environmental, operational and in-transit loads for the barge, pontoons, vessel, or other means of flotation are not exceeded or violated.

If the equipment is employer-made, it must not be used unless the employer has documents demonstrating that the load charts and applicable parameters for use meet the requirements of paragraphs (m)(1) through (3) [Floating Cranes/Derricks] of this section. Such documents must be signed by a registered professional engineer who is a qualified person with respect to the design of this type of equipment (including the means of flotation).

The rated capacity modification required in paragraph (n)(1) [Land Cranes/Derricks] of this section is performed by the equipment manufacturer, or a qualified person who has expertise with respect to both land crane/derrick capacity and the stability of vessels/flotation devices.

The maximum allowable list and the maximum allowable trim for both the barge, pontoon, vessel or other means of flotation must not exceed the amount necessary to ensure that the conditions in paragraph (n)(4) [Land Cranes/Derricks] of this section are met. In addition, the maximum allowable list and the maximum allowable trim does not exceed the least of the following: 5 degrees, the amount specified by the crane/derrick manufacturer, or, when, an amount is not so specified, the amount specified by the qualified person.

The maximum allowable list and the maximum allowable trim for the land crane/derrick does not exceed the amount specified by the crane/derrick manufacturer, or, when, an amount is not so specified, the amount specified by the qualified person.

The systems/means used to comply with Option (1) [Physical Attachment], Option (2) [Corralling], Option (3) [Rails], or Option (4) [Centerline Cable System] of this section are designed by a marine engineer, registered professional engineer familiar with floating crane/derrick design, or qualified person familiar with floating crane/derrick design.

A marine engineer or registered professional engineer familiar with floating crane/derrick design develops and signs a written plan for the use of the mobile auxiliary crane.

Rated capacities (load charts) are posted at the operator’s station. If the operator’s station is moveable (such as with pendant-controlled equipment), the load charts are posted on the equipment.

Clearly mark the hazard areas by a combination of warning signs (such as, “Danger—Swing/Crush Zone”) and high visibility markings on the equipment that identify the hazard areas. In addition, the employer must train each employee to understand what these markings signify.

The deck is marked to identify the permitted areas for positioning, travel, and operation.
Scope/Application: This standard applies to power-operated equipment, when used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., “hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Additional Note: The following paragraphs of this section specify requirements for employers using equipment with a maximum rated hoisting/lifting capacity of 2,000 pounds or less.

STANDARD HIGHLIGHTS
- Programs, Policies and Procedures—registered professional engineer
- Inspections and Tests—post assembly inspections
- Recordkeeping—documentation, written, registered professional engineer, availability
- Training and Communications—employee training
- Qualified Person—qualifications, registered professional engineer
- Signs, Markings and Tags—load chart

Programs, Policies and Procedures

1926.1441(c)(2)(i)—When the manufacturer’s procedures are unavailable, develop, and ensure compliance with, all procedures necessary for the safe operation of the equipment and attachments.

1926.1441(c)(2)(iii)—Ensure that procedures related to the capacity of the equipment are developed and signed by a registered professional engineer familiar with the equipment.

1926.1441(c)(3)(ii)—Procedures applicable to the operation of the equipment, recommended operating speeds, special hazard warnings, instructions, and operator’s manual are readily available for use by the operator.

1926.1441(h)—Inspections. The employer must ensure that equipment is inspected in accordance with manufacturer procedures.

Inspections and Tests

1926.1441(b)(2)(ii)—Post-assembly inspection. Upon completion of assembly, the equipment is inspected to ensure that it is in compliance with paragraph (b)(2)(i) [Assembly/Disassembly] of this section (see Sec. 1926.1412(c) [Inspections] for post-assembly inspection requirements).

1926.1441(h)—Inspections. The employer must ensure that equipment is inspected in accordance with manufacturer procedures.

Recordkeeping

1926.1441(b)(2)(i)(A)—Manufacturer instructions, recommendations, limitations, and specifications. When these documents and information are unavailable, a registered professional engineer familiar with the type of equipment involved must approve, in writing, the selection and configuration of components. [Reference paragraph (b)(2)(i) for more specific information.]

1926.1441(c)(3)(i)—The load chart is available to the operator at the control station.

1926.1441(c)(3)(ii)—Procedures applicable to the operation of the equipment, recommended operating speeds, special hazard warnings, instructions, and operator’s manual are readily available for use by the operator.
1926.1441(h)—Inspections. The employer must ensure that equipment is inspected in accordance with manufacturer procedures.

Training and Communications

1926.1441(e)—Operator qualifications. The employer must train each operator, prior to operating the equipment, on the safe operation of the type of equipment the operator will be using.

1926.1441(f)—Signal person qualifications. The employer must train each signal person in the proper use of signals applicable to the use of the equipment.

Qualified Person

1926.1441(b)(2)(i)(A)—Manufacturer instructions, recommendations, limitations, and specifications. When these documents and information are unavailable, a registered professional engineer familiar with the type of equipment involved must approve, in writing, the selection and configuration of components. [Reference paragraph (b)(2)(i) for more specific information.]

1926.1441(c)(2)(ii)—Ensure that procedures for the operational controls are developed by a qualified person.

1926.1441(c)(2)(iii)—Ensure that procedures related to the capacity of the equipment are developed and signed by a registered professional engineer familiar with the equipment.

1926.1441(k)—Design. The employer must ensure that the equipment is designed by a qualified engineer.

Signs, Markings and Tags

1926.1441(c)(3)(i)—The load chart is available to the operator at the control station.
OSH Publications

We provide a variety of OSH publications. These include general industry and construction regulations, industry guides that cover different OSH topics, quick cards, fact sheets and brochures that cover a wide variety of serious safety and health workplace hazards. Workplace labor law posters are available free of charge. To obtain publications, call toll free at 1-800-NC-LABOR (1-800-625-2267) or direct at 919-807-2875. You may view the list of publications and also download many of them at www.ncslabor.com/pubs.htm.
Occupational Safety and Health (OSH)

Sources of Information

You may call 1-800-NC-LABOR (1-800-625-2267) to reach any division of the N.C. Department of Labor (NCDOL);
or visit the NCDOL home page on the World Wide Web: www.nclabor.com.

Occupational Safety and Health Division
Mailing Address: 1101 Mail Service Center, Raleigh, NC 27699-1101
Physical Location: 111 Hillsborough St.
Local Telephone: 919-807-2900 Fax: 919-807-2856

For information concerning education, training, interpretations of occupational safety and health standards, and OSH recognition programs contact:

Education, Training and Technical Assistance Bureau
Mailing Address: 1101 Mail Service Center, Raleigh, NC 27699-1101
Physical Location: 111 Hillsborough St.
Telephone: 919-807-2875 Fax: 919-807-2876

Consultative Services Bureau
Mailing Address: 1101 Mail Service Center, Raleigh, NC 27699-1101
Physical Location: 111 Hillsborough St.
Telephone: 919-807-2899 Fax: 919-807-2902

Agricultural Safety and Health Bureau
Mailing Address: 1101 Mail Service Center, Raleigh, NC 27699-1101
Physical Location: 111 Hillsborough St.
Telephone: 919-807-2923 Fax: 919-807-2924

Safety and Health Compliance District Offices
Raleigh District Office (3801 Lake Boone Trail, Suite 300, Raleigh, NC 27607)
Telephone: 919-779-8570 Fax: 919-420-7966
Asheville District Office (204 Charlotte Highway, Suite B, Asheville, NC 28803-8681)
Telephone: 828-299-8232 Fax: 828-299-8266
Charlotte District Office (901 Blairhill Road, Suite 200, Charlotte, NC 28217-1578)
Telephone: 704-665-4341 Fax: 704-665-4342
Winston-Salem District Office (4964 University Parkway, Suite 202, Winston-Salem, NC 27106-2800)
Telephone: 336-776-4420 Fax: 336-767-3989
Wilmington District Office (1200 N. 23rd St., Suite 205, Wilmington, NC 28405-1824)
Telephone: 910-251-2678 Fax: 910-251-2654
***To make an OSH Complaint, OSH Complaint Desk: 919-807-2796***

Planning, Statistics and Information Management Bureau
Mailing Address: 1101 Mail Service Center, Raleigh, NC 27699-1101
Physical Location: 111 Hillsborough St.
Telephone: 919-807-2950 Fax: 919-807-2951

For statistical information concerning program activities contact:

N.C. Department of Labor Library
Mailing Address: 1101 Mail Service Center, Raleigh, NC 27699-1101
Physical Location: 111 Hillsborough St.
Telephone: 919-807-2850 Fax: 919-807-2849

N.C. Department of Labor (Other than OSH)
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-733-7166 Fax: 919-733-6197