



OSHA Shipyard Employment Standards Requiring Programs, Inspections, Procedures, Records and/or Training



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This guide is in a series of industry guides focused on standards requiring programs, training, recordkeeping, inspections, procedures and/or documentation. 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
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Phone: 919-807-2875 or 1-800-625-2267

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

The projected cost of the NCDOL OSH program for federal fiscal year 2014–2015 is \$18,237,603. Federal funding provides approximately 29 percent (\$5,302,500) of this fund.



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Foreword

In North Carolina, the N.C. Department of Labor (NCDOL) 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 NCDOL 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 booklet, like the other educational materials produced by the NCDOL, can help.

Cherie Berry
Commissioner of Labor

Overview

This industry guide is designed to assist employers in shipyard employment in complying with standards that have special requirements such as written programs, inspections, competent persons, training and recordkeeping requirements that are applicable to shipyard employment. 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 ETТА 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, 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.

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, certified industrial hygienists, physicians, and designated 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, posting and placarding.

O: Other requirements: Indicates rules that have special requirements other than those listed above, such as consensus standards.

Note: An asterisk () within a special requirement box marked with an X in the following tables located in Section 1 denotes a written and/or documented component. When a special requirement has a written and/or documented component, the recordkeeping box will also be marked with an X.*

Section 2 contains state-specific standards, Section 3 contains recordkeeping standards, and Section 4 contains shipyard employment 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 or what it applies to). 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 documentation requirements are *italicized and bolded*.

SECTION 1

13 NORTH CAROLINA ADMINISTRATIVE CODE

CHAPTER 7—OFFICE OF OCCUPATIONAL SAFETY AND HEALTH

SUBCHAPTER 7A—GENERAL RULES AND OPERATIONAL PROCEDURES

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
7A .0600—Safety and Health Programs and Committees	X*	X*	X*		X						

29 CFR PART 1904—RECORDKEEPING

SUBPARTS B—F—RECORDING AND REPORTING OCCUPATIONAL INJURIES AND ILLNESSES

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1904.0—Purpose—1904.46—Definitions	X		X*	X*	X					X	

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART A – GENERAL PROVISIONS

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.6—Commercial Diving Operations	X*	X*	X*		X			X*	X*	X*	X*
1910.410—Qualifications of Dive Team					X				X		
1910.420—Safe Practices Manual	X*		X*								
1910.421—Pre-Dive Procedures	X*	X	X*		X				X*	X	
1910.423—Post-Dive Procedures	X*		X*		X						
1910.430—Equipment	X*	X	X*								
1910.440—Recordkeeping Requirements			X*								
1915.7—Competent Person		X*	X*		X			X*	X*	X*	

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART B—CONFINED AND ENCLOSED SPACES AND OTHER DANGEROUS ATMOSPHERES IN SHIPYARD EMPLOYMENT

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.12—Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres	X	X	X*	X*	X	X		X	X	X	X
1915.13—Cleaning and Other Cold Work		X	X*	X*		X		X		X	
1915.14—Hot Work		X	X*	X*		X		X	X	X	
1915.15—Maintenance of Safe Conditions		X	X*	X*		X		X	X		
1915.16—Warning Signs and Labels		X		X*						X	

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART C—SURFACE PREPARATION AND PRESERVATION

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.32—Toxic Cleaning Solvents						X					
1915.34—Mechanical Paint Removers		X									
1915.35—Painting		X				X		X			
1915.36—Flammable Liquids		X				X		X			

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART D—WELDING, CUTTING AND HEATING

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.51—Ventilation and protection in welding, cutting and heating						X					
1915.53—Welding, Cutting and Heating in Way of Preservative Coatings		X						X			
1915.54—Welding, Cutting and Heating of Hollow Metal Containers and Structures not Covered by 1915.12		X						X			
1915.55—Gas Welding and Cutting		X								X	
1915.56—Arc Welding and Cutting		X			X						
1915.57—Uses of Fissionable Material in Ship Repairing and Shipbuilding					X			X	X		

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART E—SCAFFOLDS, LADDERS AND OTHER WORKING SURFACES

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.71—Scaffolds or Staging		X						X			
1915.72—Ladders		X									X
1915.74—Access to Vessels		X		X					X		
1915.76—Access to Cargo Spaces and Confined Spaces		X			X						

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART F—GENERAL WORKING CONDITIONS

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.81—Housekeeping	X										
1915.82—Lighting											X
1915.83—Utilities					X*				X	X	
1915.84—Working Alone					X						
1915.87—Medical Services and First Aid	X	X	X*	X*	X					X	
1915.88—Sanitation	X				X					X	
1915.89—Control of Hazardous Energy (lockout/tags-plus)	X*	X*	X*		X					X	X
1915.90—Safety Color Code for Marking Physical Hazards										X	
<i>1910.144—Safety Color Code for Marking Physical Hazards</i>										X	
1915.91—Accident Prevention Signs and Tags					X					X	X
<i>1910.145—Specifications for Accident Prevention Signs and Tags</i>					X					X	X
1915.92—Retention of DOT Markings, Placards, and Labels										X	X
1915.93—Moto Vehicle Safety Equipment, Operation, and Maintenance	X	X			X						X
1915.94—Servicing of Multi-Piece and Single-Piece Rim Wheels	X	X*	X*	X*	X				X	X	
<i>1910.177—Servicing Multi-Piece and Single-Piece Rim Wheels</i>	X	X*	X*	X*	X				X	X	

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART G—GEAR AND EQUIPMENT FOR RIGGING AND MATERIALS HANDLING

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.111—Inspection		X									
1915.112—Ropes, Chains and Slings		X			X				X	X	
1915.113—Shackles and Hooks		X	X*	X*						X	
1915.114—Chain Falls and Pull-Lifts		X								X	
1915.115—Hoisting and Hauling Equipment		X	X*	X*					X	X	
1915.116—Use of Gear					X				X		
1915.117—Qualifications of Operators								X	X		
1915.120—Powered Industrial Truck Operator Training			X*	X*	X						
<i>1910.178—Powered Industrial Trucks</i>			X*	X*	X						

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART H—TOOLS AND RELATED EQUIPMENT

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.131—General Precautions		X								X	
1915.132—Portable Electric Tools		X			X						
1915.134—Abrasive Wheels		X									X
1915.135—Powered Actuated Fastening Tools		X			X			X			
1915.136—Internal Combustion Engines Other Than Ship’s Equipment		X						X			

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART I—PERSONAL PROTECTIVE EQUIPMENT (PPE)

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.152—General Requirements			X*		X	X					
1915.153—Eye and Face Protection											X
1915.154—Respiratory Protection	X*	X*	X*	X*	X		X*		X	X	
<i>1910.134—Respiratory Protection</i>	X*	X*	X*	X*	X		X*		X	X	
1915.155—Head Protection											X
1915.156—Foot Protection											X
1915.158—Lifesaving Equipment		X								X	X
1915.159—Personal Fall Arrest Systems (PFAS)		X			X				X		
1915.160—Positioning Device Systems		X			X				X		

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART J—SHIP’S MACHINERY AND PIPING SYSTEMS

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.162—Ship’s Boilers		X								X	
1915.163—Ship’s Piping Systems		X								X	
1915.164—Ship’s Propulsion Machinery		X								X	

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART K—PORTABLE, UNFIRED PRESSURE VESSELS, DRUMS AND CONTAINERS, OTHER THAN SHIP'S EQUIPMENT

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.172—Portable Air Receivers and Other Unfired Pressure Vessels		X	X*	X*				X		X	X

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART L—ELECTRICAL MACHINERY

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.181—Electrical Circuits and Distribution Boards		X								X	

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART P—FIRE PROTECTION IN SHIPYARD EMPLOYMENT

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.501—General Provisions	X*				X						
1915.502—Fire Safety Plan	X		X*		X						
1915.503—Precautions for Hot Work		X	X*	X*				X*	X*	X	
1915.504—Fire Watches	X*	X	X*		X			X	X	X	
1915.505—Fire Response	X*	X	X*		X		X		X		
1915.506—Hazards of Fixed Extinguishing Systems on Board Vessels and Vessel Sections		X			X				X		
1915.507—Land-Side Fire Protection Systems		X			X				X	X	X
1915.508—Training	X*		X*		X*				X		X

29 CFR PART 1915—SHIPYARD EMPLOYMENT

SUBPART Z—TOXIC AND HAZARDOUS SUBSTANCES

SECTION	P	I	RK	C	T	EM	MS	CP	QP	SMT	O
1915.1000—Air Contaminants						X					
1915.1001—Asbestos	X*	X	X*	X*	X*	X	X	X	X*	X	X
1915.1003—13 Carcinogens	X*		X*		X*		X*		X*	X	
1910.1003—13 Carcinogens	X*		X*		X*		X*			X	
1915.1017—Vinyl Chloride	X*		X*		X*	X*	X*		X*	X	
1910.1017—Vinyl Chloride	X*		X*		X*	X*	X*		X*	X	
1915.1018—Inorganic Arsenic	X*		X*		X*	X*	X*		X*	X	
1910.1018—Inorganic Arsenic	X*		X*		X*	X*	X*		X*	X	
1915.1020—Access to Employee Exposure and Medical Records			X*		X*						
1910.1020—Access to Employee Exposure and Medical Records			X*		X*						
1915.1025—Lead	X*		X*	X*	X*	X*	X*		X*	X	
1910.1025—Lead	X*		X*	X*	X*	X*	X*		X*	X	
1915.1026—Chromium (VI)	X	X	X*		X*	X*	X*		X*	X	X
1915.1027—Cadmium	X	X	X*		X*	X*	X*	X	X*	X	X
1910.1027—Cadmium	X	X	X*		X*	X*	X*	X	X*	X	X
1915.1028—Benzene	X	X	X*		X*	X*	X*	X	X*	X	X
1910.1028—Benzene	X		X*		X*	X*	X*		X*	X	
1915.1030—Bloodborne Pathogens	X*		X*	X*	X*	X*	X*		X*	X	
1910.1030—Bloodborne Pathogens	X*		X*	X*	X*	X*	X*		X*	X	
1915.1044—1,2-Dibromo-3-Chloropropane	X	X	X*		X*	X*	X*		X*	X	
1910.1044—1,2-Dibromo-3-Chloropropane	X	X	X*		X*	X*	X*		X*	X	
1915.1045—Acrylonitrile	X	X	X*		X*	X*	X*		X*	X	
1910.1045—Acrylonitrile	X	X	X*		X*	X*	X*		X*	X	
1915.1047—Ethylene Oxide	X	X	X*		X*	X*	X*		X*	X	
1910.1047—Ethylene Oxide	X	X	X*		X*	X*	X*		X*	X	
1915.1048—Formaldehyde	X	X	X*		X*	X*	X*		X*	X	
1910.1048—Formaldehyde	X	X	X*		X*	X*	X*		X*	X	
1915.1050—Methylenedianiline	X*	X*	X*		X*	X*	X*		X*	X	
1910.1050—Methylenedianiline	X*	X*	X*		X*	X*	X*		X*	X	
1915.1052—Methylene Chloride	X		X*		X*	X*	X*		X*	X	
1910.1052—Methylene Chloride	X		X*		X*	X*	X*		X*	X	
1915.1200—Hazard Communication	X*		X*		X*				X*	X*	X*
1910.1200—Hazard Communication	X*		X*		X*				X*	X*	X*
1915.1450—Occupational Exposure to Hazardous Chemicals in Laboratories	X*		X*		X*	X*	X*		X*	X	X
1910.1450—Occupational Exposure to Hazardous Chemicals in Laboratories	X*		X*		X*	X*	X*		X*	X	X

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. Gen. Stat. 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
- Training and Communications—on or off-site, knowledgeable trainer, applicable standards
- Recordkeeping*—reporting requirements
- Inspections and Tests*—quarterly inspections, self-audits, checklists

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.*

Note to Section 7A.0601(b): *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; 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.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 work-site. 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.

Note to Section 7A.0604: Reference Section 07A.0604 [Selection of Safety Committees], Section 07A.0605 [Safety and Health Committee Requirements], and N.C. Gen. Stat. § 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)*.

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.

Note to Section 7A.0606: 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.*

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 7A.0604: Reference Section 07A.0604 [Selection of Safety Committees], Section 07A.0605 [Safety and Health Committee Requirements], and N.C. Gen. Stat. § 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 [specific information.]

Note to Section 7A.0605: Reference Section 07A.0605 [Reports 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.

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 *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.

SECTION 3

29 CFR 1904 Subparts 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

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

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* 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.*

Note to paragraph 4(a): *Specific requirements are found in 1904.4(a).*

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.

Note to paragraph (7)(b)(1): *Reference 1904.7(b)(1) for more 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 [Retention and Updating] 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.

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.*

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(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. [**Note:** *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*.

1904.41(a)—*Annual OSHA Injury and Illness Survey of Ten or More Employers*. Basic requirement. If you receive *OSHA’s annual survey form*, *you must fill it out and send it to OSHA or OSHA’s designee*, as stated on the survey form.

1904.41(b)(2)—*Annual OSHA Injury and Illness Survey of Ten or More Employers*. *How quickly do I need to respond to an OSHA survey form?* *You must send the survey reports to OSHA, or OSHA’s designee, by mail or other means described in the survey form, within 30 calendar days, or by the date stated in the survey form, whichever is later*.

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*.

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.

SECTION 4

29 CFR 1915 Subpart A—General Provisions

1915.6—Commercial Diving Operations

Scope/Application: *Commercial diving operations shall be subject to Subpart T of Part 1910, 1910.401-1910.441 of this chapter.*

29 CFR Subpart T—Commercial Diving Operations

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.*

Note to paragraph (a)(1): *Reference paragraph (a) for specific information.*

Qualified Person

1910.410(c)(2)—The *designated person-in-charge shall have experience and training in the conduct of the assigned diving operation.*

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
- Recordkeeping*—safe practices 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.*

Note to paragraph (a)(1): *Reference paragraph (a)(1) for specific information.*

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.

Note to paragraph (a)(1): Reference paragraph (a)(1) for specific information.

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
- Qualified Person*—first aid kit approved by physician
- Inspections and Tests—assessment, inspection before dive
- Training and Communications—briefing prior to dive
- Signs, Markings and Tags—flag displayed
- Recordkeeping*—list, approved first aid kit

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(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.*

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.*

Inspections and Tests

1910.421(d)—*Planning and assessment. Planning of a diving operation shall include an assessment of the safety and health aspects.*

Note to paragraph (d): Reference paragraph (d) for specific planning and assessment information.

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.*

Note to paragraph (g): Reference paragraph (g) for specific inspection information.

Training and Communications

1910.421(f)(1)—*Dive team members shall be briefed.*

Note to paragraph (f)(1): Reference paragraph (f) for specific information regarding briefing.

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.*

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.*

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 Service] 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—employee instructions
- Recordkeeping*—records
- Programs, Policies and Procedures*—investigate each incident, written evaluations

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).*

Recordkeeping

1910.423(d)(1)—*Information shall be **recorded** and maintained for each diving operation.*

Note to paragraph (d)(1): *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.*

Note to paragraph (d)(2): *Reference paragraph (d) for specific 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.*

Note to paragraph (d)(3): *Reference paragraph (d) for specific additional 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.*

Note to paragraph (e)(3): Reference paragraph (e) for specific evaluation documentation.

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.

Note to paragraph (e)(1): Reference paragraph (e) for specific information regarding incident evaluations and investigations.

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.

Note to paragraph (e)(3): Reference paragraph (e) for specific evaluation information.

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

- Recordkeeping*—tagging/logging system, records
- Programs, Policies and Procedures*—tagging/logging system
- Inspections and Tests—regular inspections, testing every 6 months and annually

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.

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(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.

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.

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

- Recordkeeping*—retention requirements

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 [Sec. 1910.420], depth-time profiles [Sec. 1910.422], recordings of dives [Sec. 1910.423], decompression procedure assessment evaluations [Sec. 1910.423], and **records** of hospitalizations [Sec. 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 [Sec. 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)(ii)**—Safe practices **manual** [Sec. 1910.420]—current document only.
- **1910.440(b)(3)(iii)**—Depth-time **profile** [Sec. 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 [Sec. 1910.423]—1 year, except 5 years where there has been an incident of decompression sickness.
- **1910.440(b)(3)(v)**—Decompression procedure assessment **evaluations** [Sec. 1910.423]—5 years.
- **1910.440(b)(3)(vi)**—Equipment inspections and testing **records** [Sec. 1910.430]—current entry or **tag**, or until equipment is withdrawn from service.
- **1910.440(b)(3)(vii)**—**Records** of hospitalizations [Sec. 1910.440]—5 years.

1915.7—Competent Person

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Recordkeeping*—test, inspections
- Competent Person—perform test and inspections
- Signs, Markings and Tags*—records posted
- Inspections and Tests—performance of test and inspections

- Qualified Person—marine chemist or certified industrial hygienist
- Training and Communications—competent person

Recordkeeping

1915.7(b)(2)(i)—The employer shall maintain either a **roster** of designated competent persons or a **statement** that a *Marine Chemist* will perform the tests or inspections which require a competent person.

1915.7(b)(2)(ii)—The employer shall make the **roster** of designated persons or the statement available to employees, the employee’s representative, the Director or the Assistant Secretary upon request.

- **1915.7(b)(2)(ii)**—The employer shall make the **roster** of designated persons or the statement available to employees, the employee’s representative, the Director or the Assistant Secretary upon request.

1915.7(b)(2)(iii)—The **roster** shall contain specific information.

- **1915.7(b)(2)(iii)(B)**—The date the employee was trained as a competent person.

Note to paragraph (b)(2)(iii): Reference paragraph (b)(2)(iii) for more information.

1915.7(c)—The employer shall ensure that each designated competent person has specific skills and knowledge.

- **1915.7(c)(7)**—Ability to maintain **records** required by this section.

Note to paragraph (c): Reference paragraph (c) for more information.

1915.7(d)(1)—When tests and inspections are performed by a competent person, *Marine Chemist*, or *Certified Industrial Hygienist* as required by any provisions of Subparts B [Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment], C [Surface Preparation and Preservation], D [Welding, Cutting and Heating] and H [Tools and Related Equipment] of this part, the employer shall ensure that the person performing the test and inspection **records** the location, time, date, location of inspected spaces, and the operations performed, as well as the test results and any instructions.

1915.7(d)(2)—The employer shall ensure that the **records** are posted in the immediate vicinity of the affected operations while work in the spaces is in progress. The **records** shall be kept on file for a period of at least three months from the completion date of the specific job for which they were generated.

1915.7(d)(3)—The employer shall ensure that the **records** are available for inspection by the Assistant Secretary, Director, and employees and their representatives.

Competent Person

1915.7(b)(1)—One or more competent persons shall be designated by the employer in accordance with the applicable requirements of this section, unless the requirements of Subparts B [Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment], C [Surface Preparation and Preservation], D [Welding, Cutting and Heating] and H [Tools and Related Equipment] of this part are always carried out by a *Marine Chemist*. Exception: The employer may designate any person who meets the applicable portions of the criteria set forth in paragraph (c)—Criteria of this section as a competent person who is limited to performing testing.

Note to paragraph (b)(1): Reference paragraph (b)(1) for specific information.

1915.7(b)(2)(i)—The employer shall maintain either a **roster** of designated competent persons or a statement that a *Marine Chemist* will perform the tests or inspections which require a competent person.

1915.7(b)(2)(ii)—The employer shall make the **roster** of designated persons or the statement available to employees, the employee’s representative, the Director or the Assistant Secretary upon request.

1915.7(c)—The employer shall ensure that each designated competent person has skills and knowledge.

Note to paragraph (c): Reference paragraph (c) for specific information.

1915.7(d)(1)—When tests and inspections are performed by a competent person, *Marine Chemist*, or *Certified Industrial Hygienist* as required by any provisions of Subparts B [Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment], C [Surface Preparation and Preservation], D [Welding, Cutting and Heating]

and H [Tools and Related Equipment] of this part, the employer shall ensure that the person performing the *test and inspection records* the location, time, date, location of *inspected* spaces, and the operations performed, as well as the *test* results and any *instructions*.

Signs, Markings and Tags

1915.7(d)(2)—The employer shall ensure that the *records* are *posted* in the immediate vicinity of the affected operations while work in the spaces is in progress. The *records shall be kept on file for a period of at least three months from the completion date* of the specific job for which they were generated.

Inspections and Tests

1915.7(b)(1)(i)—Repair work on small craft in boat yards where only *combustible gas indicator tests* are required for fuel tank leaks or when using flammable paints below decks;

1915.7(b)(1)(iv)—*Tests and inspections* performed to comply with 1915.35(b)(8) [Painting] and 1915.36(a)(5) [Flammable Liquids].

1915.7(c)—The employer shall ensure that each designated competent person has skills and knowledge.

Note to paragraph (c): Reference paragraph (c) for specific information.

1915.7(d)(1)—When *tests and inspections* are performed by a *competent person, Marine Chemist, or Certified Industrial Hygienist* as required by any provisions of Subparts B [Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment], C [Surface Preparation and Preservation], D [Welding, Cutting and Heating] and H [Tools and Related Equipment] of this part, the employer shall ensure that the person performing the *test and inspection records* the location, time, date, location of *inspected* spaces, and the operations performed, as well as the *test* results and any *instructions*.

Qualified Person

1915.7(b)(1)—One or more *competent persons shall be designated by the employer* in accordance with the applicable requirements of this section, unless the requirements of Subparts B [Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment], C [Surface Preparation and Preservation], D [Welding, Cutting and Heating] and H [Tools and Related Equipment] of this part are always carried out by a *Marine Chemist*. Exception: The employer may designate any person who meets the applicable portions of the criteria set forth in *paragraph (c)—Criteria* of this section as a *competent person* who is limited to performing testing to the following situations:

1915.7(b)(2)(ii)—The employer shall make the *roster of designated persons or the statement* available to employees, the employee's representative, the Director or the Assistant Secretary upon request.

Training and Communications

1915.7(c)—The employer shall ensure that *each designated competent person has skills and knowledge*.

Note to paragraph (c): Reference paragraph (c) for specific skills and knowledge information.

29 CFR 1915 Subpart B—Confined and Enclosed Spaces and Other Dangerous Atmospheres

1915.12—Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Competent Person—perform test and inspections
- Signs, Markings and Tags—test and inspections posted
- Inspections and Tests—performance of test and inspections
- Qualified Person—marine chemist or certified industrial hygienist
- Programs, Policies and Procedures—establishing rescue team
- Training and Communications—competent person, rescue team, confined space entrants
- Exposure Monitoring—atmospheric conditions
- Certification*—training
- Recordkeeping*—certifications

Competent Person

1915.12(a)(1)—The employer shall ensure that the following spaces *are visually inspected and tested by a competent person* to determine the atmosphere’s oxygen content *prior to initial entry into the space* by an employee.

Note to paragraph (a)(1): Refer to the paragraph for more specific information.

1915.12(b)(1)—The employer *shall ensure that spaces and adjacent spaces that contain or have contained combustible or flammable liquids or gases are:*

- **1915.12(b)(1)(i)**—*Inspected visually by the competent person* to determine the presence of combustible or flammable liquids; and
- **1915.12(b)(1)(ii)**—*Tested by a competent person* prior to entry by an employee to determine the concentration of flammable vapors and gases within the space.

1915.12(c)(1)—The employer *shall ensure that spaces or adjacent spaces that contain or have contained liquids, gases, or solids that are toxic, corrosive or irritant are:*

- **1915.12(c)(1)(i)**—*Inspected visually by the competent person* to determine the presence of toxic, corrosive, or irritant residue contaminants; and
- **1915.12(c)(1)(ii)**—*Tested by a competent person* prior to initial entry by an employee to determine the air concentration of toxics, corrosives, or irritants within the space.

Signs, Markings and Tags

1915.12(a)(2)—If the space to be entered contains an oxygen deficient atmosphere, the space *shall be labeled “Not Safe for Workers” or, if oxygen-enriched, “Not Safe for Workers—Not Safe for Hot Work.”* If an oxygen-deficient or oxygen-enriched atmosphere is found, ventilation shall be provided at volumes and flow rates sufficient to ensure that the oxygen content is maintained at or above 19.5 percent and below 22.0 percent by volume. The *warning label may be removed* when the oxygen content is equal to or greater than 19.5 and less than 22.0 percent by volume.

1915.12(b)(2)—If the concentration of flammable vapors or gases in the space to be entered is equal to or greater than 10 percent of the lower explosive limit, the space *shall be labeled “Not Safe for Workers” and “Not Safe for Hot Work.”* Ventilation shall be provided at volumes and flow rates sufficient to ensure that the concentration of flammable vapors is maintained below 10 percent of the lower explosive limit. The *warning labels may be removed* when the concentration of flammable vapors is below 10 percent of the lower explosive limit.

1915.12(c)(2)—If a space contains an air concentration of a material which exceeds a *part 1915 subpart Z—Toxic and Hazardous Substances* permissible exposure limit (PEL) or is IDLH, the space shall be *labeled “Not Safe for Workers.”* Ventilation shall be provided at volumes and flow rates which will ensure that air concentrations are maintained within the PEL or, in the case of contaminants for which there is no established PEL, below the IDLH. The *warning label may be removed* when the concentration of contaminants is maintained within the PEL or below IDLH level.

Inspections and Tests

1915.12(a)(1)—The employer shall ensure that the following spaces *are visually inspected and tested by a competent person* to determine the atmosphere’s oxygen content *prior to initial entry into the space* by an employee.

Note to paragraph (a)(1): Reference paragraph (a)(1) for specific information.

1915.12(a)(2)—If the space to be entered contains an oxygen deficient atmosphere, the space *shall be labeled “Not Safe for Workers” or, if oxygen-enriched, “Not Safe for Workers—Not Safe for Hot Work.”* If an oxygen-deficient or oxygen-enriched atmosphere is found, ventilation shall be provided at volumes and flow rates sufficient to ensure that the oxygen content is maintained at or above 19.5 percent and below 22.0 percent by volume. The *warning label may be removed when the oxygen content is equal to or greater than 19.5 and less than 22.0 percent by volume.*

1915.12(b)(1)—The employer *shall ensure that spaces and adjacent spaces that contain or have contained combustible or flammable liquids or gases* are:

- **1915.12(b)(1)(i)**—*Inspected visually by the competent person* to determine the presence of combustible or flammable liquids; and
- **1915.12(b)(1)(ii)**—*Tested by a competent person prior to entry* by an employee to determine the concentration of flammable vapors and gases within the space.

1915.12(c)(1)—The employer *shall ensure that spaces or adjacent spaces that contain or have contained liquids, gases, or solids that are toxic, corrosive or irritant* are:

- **1915.12(c)(1)(i)**—*Inspected visually by the competent person* to determine the presence of toxic, corrosive, or irritant residue contaminants; and
- **1915.12(c)(1)(ii)**—*Tested by a competent person prior to initial entry* by an employee to determine the air concentration of toxics, corrosives, or irritants within the space.

1915.12(c)(3)—If a space cannot be ventilated to within the PELs or is IDLH, *a Marine Chemist or CIH must re-test until the space can be certified “Enter with Restrictions” or “Safe for Workers.”*

Qualified Person

1915.12(c)(3)—If a space cannot be ventilated to within the PELs or is IDLH, *a Marine Chemist or CIH must re-test until the space can be certified “Enter with Restrictions” or “Safe for Workers.”*

Programs, Policies and Procedures

1915.12(e)—The employer *shall either establish a shipyard rescue team or arrange for an outside rescue team* which will respond promptly to a request for rescue service.

Training and Communications

1915.12(d)(1)—The employer shall ensure that each employee that enters a confined or enclosed space and other areas with dangerous atmospheres *is trained to perform all required duties safely.*

1915.12(d)(2)—The employer shall ensure that each employee who enters a confined space, enclosed space, or other areas with dangerous atmospheres *is trained on specific criteria.*

Note to paragraph (d)(2): Reference paragraph (d)(2) for specific training information.

1915.12(d)(3)—The employer shall ensure that *each entrant into confined or enclosed spaces or other dangerous atmospheres is trained to exit the space or dangerous atmosphere.*

Note to paragraph (d)(3): Reference paragraph (d)(3) for specific training information.

1915.12(d)(4)—The employer *shall provide each employee with training:*

- **1915.12(d)(4)(i)**—*Before the entrant begins work* addressed by this section; and
- **1915.12(d)(4)(ii)**—*Whenever there is a change in operations or in an employee’s duties* that presents a hazard about which the employee has not previously been *trained.*

1915.12(e)(1)(i)—Each employee assigned to the *shipyard team* shall be provided with and trained to use the personal protective equipment he or she will need, including respirators and any rescue equipment necessary for making rescues from confined and enclosed spaces and other dangerous atmospheres.

1915.12(e)(1)(ii)—Each employee assigned to the shipyard rescue team shall be trained to perform his or her rescue functions including confined and enclosed and other dangerous atmosphere entry.

1915.12(e)(1)(iii)—Shipyard rescue teams shall practice their skills at least once every 12 months. Practice drills shall include the use of mannequins and rescue equipment during simulated rescue operations involving physical facilities that approximate closely those facilities from which rescue may be needed.

Note to paragraph (e)(1)(iii): If the team performs an actual rescue during the 12 month period, an additional practice drill for that type of rescue is not required.

Exposure Monitoring

1915.12(a)(2)—If the space to be entered contains an oxygen deficient atmosphere, the space shall be labeled “Not Safe for Workers” or, if oxygen-enriched, “Not Safe for Workers—Not Safe for Hot Work.” If an oxygen-deficient or oxygen-enriched atmosphere is found, ventilation shall be provided at volumes and flow rates sufficient to ensure that the oxygen content is maintained at or above 19.5 percent and below 22.0 percent by volume. The warning label may be removed when the oxygen content is equal to or greater than 19.5 and less than 22.0 percent by volume.

1915.12(a)(3)—An employee may not enter a space where the oxygen content, by volume, is below 19.5 percent or above 22.0 percent. **Exception:** An employee may enter for emergency rescue or for a short duration for installation of ventilation equipment necessary to start work in the space provided:

- **1915.12(a)(3)(i)**—The atmosphere in the space is monitored for oxygen content, by volume, continuously; and
- **1915.12(a)(3)(ii)**—Respiratory protection and other appropriate personal protective equipment and clothing are provided in accordance with Subpart I [Personal Protective Equipment] of this part.

Note to paragraph (a): Other provisions for work in IDLH atmospheres are located in Subpart I—Personal Protective Equipment of this part.

1915.12(b)(2)—If the concentration of flammable vapors or gases in the space to be entered is equal to or greater than 10 percent of the lower explosive limit, the space shall be labeled “Not Safe for Workers” and “Not Safe for Hot Work.” Ventilation shall be provided at volumes and flow rates sufficient to ensure that the concentration of flammable vapors is maintained below 10 percent of the lower explosive limit. The warning labels may be removed when the concentration of flammable vapors is below 10 percent of the lower explosive limit.

1915.12(b)(3)—An employee may not enter a space where the concentration of flammable vapors or gases is equal to or greater than 10 percent of the lower explosive limit. **Exception:** An employee may enter for emergency rescue or for a short duration for installation of ventilation equipment necessary to start work in the space, provided:

- **1915.12(b)(3)(ii)**—The atmosphere in the space is monitored continuously;

Note 1 to paragraph (b): Additional provisions for work in IDLH atmospheres are located in paragraph (b)(3) and Subpart I—Personal Protective Equipment of this part.

Note 2 to paragraph (b): Additional provisions for work in spaces containing a flammable substance which also has a permissible exposure limit, are located in Subpart Z of 29 CFR part 1915, and 1915.12(c).

1915.12(c)(2)—If a space contains an air concentration of a material which exceeds a part 1915 subpart Z [Toxic and Hazardous Substances] permissible exposure limit (PEL) or is IDLH, the space shall be labeled “Not Safe for Workers.” Ventilation shall be provided at volumes and flow rates which will ensure that air concentrations are maintained within the PEL or, in the case of contaminants for which there is no established PEL, below the IDLH. The warning label may be removed when the concentration of contaminants is maintained within the PEL or below IDLH level.

1915.12(c)(3)—If a space cannot be ventilated to within the PELs or is IDLH, a Marine Chemist or CIH must re-test until the space can be **certified** “Enter with Restrictions” or “Safe for Workers.”

1915.12(c)(4)—An employee may not enter a space whose atmosphere exceeds a PEL or is IDLH. **Exception:** An employee may enter for emergency rescue, or for a short duration for installation of ventilation equipment provided:

- **1915.12(c)(4)(i)**—The *atmosphere in the space is monitored continuously.*

Note 1 to paragraph (c): Additional provisions for work in IDLH atmospheres are located in paragraph (c)(4) and Subpart I—Personal Protective Equipment of this part.

Certification

1915.12(c)(3)—If a space cannot be ventilated to within the PELs or is IDLH, a *Marine Chemist or CIH must re-test until the space can be certified “Enter with Restrictions” or “Safe for Workers.”*

1915.12(d)(5)—The employer shall *certify that the training* required by paragraphs (d)(1) through (d)(4) [Training] of this section has been accomplished.

- **1915.12(d)(5)(i)**—The *certification shall contain the employee’s name, the name of the certifier, and the date(s) of the certification.*
- **1915.12(d)(5)(ii)**—The *certification* shall be available for inspection by the Assistant Secretary, the Director, employees, and their representatives.

1915.12(e)(1)(iv)—*At least one person on each rescue team shall maintain current certification* in basic first aid which includes maintenance of an airway, control of bleeding, maintenance of circulation and cardiopulmonary resuscitation (CPR) skills.

Recordkeeping

1915.12(d)(5)(i)—The *certification shall contain the employee’s name, the name of the certifier, and the date(s) of the certification.*

1915.12(d)(5)(ii)—The *certification* shall be available for inspection by the Assistant Secretary, the Director, employees, and their representatives.

1915.13—Cleaning and Other Cold Work

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Competent Person—perform test and inspections
- Signs, Markings and Tags—prohibit sources of ignition
- Inspections and Tests—performance of test and inspections
- Exposure Monitoring—atmospheric conditions
- Certification—spaces “Safe for Workers”
- Recordkeeping—certification

Competent Person

1915.13(b)(2)—*Testing shall be conducted by a competent person to determine the concentration of flammable, combustible, toxic, corrosive, or irritant vapors within the space prior to the beginning of cleaning or cold work.*

1915.13(b)(4)—*Testing shall be conducted by the competent person as often as necessary during cleaning or cold work to assure that air concentrations are below 10 percent of the lower explosive limit and within the PELs and below IDLH levels. Factors such as, but not limited to, temperature, volatility of the residues and other existing conditions in and about the spaces are to be considered in determining the frequency of testing necessary to assure a safe atmosphere.*

Note to paragraph (b)(4): See Appendix A for additional information on frequency of testing.

1915.13(b)(7)—*A competent person shall test ventilation discharge areas and other areas where discharged vapors may collect to determine if vapors discharged from the spaces being ventilated are accumulating in concentrations hazardous to employees.*

Signs, Markings and Tags

1915.13(b)(10)—The employer shall *prominently post signs that prohibit sources of ignition within or near a space that has contained flammable or combustible liquids or gases in bulk quantities.*

Note to paragraph (b)(10): Additional provisions are provided in the paragraph.

Inspections and Tests

1915.13(b)(2)—*Testing shall be conducted by a competent person to determine the concentration of flammable, combustible, toxic, corrosive, or irritant vapors within the space prior to the beginning of cleaning or cold work.*

1915.13(b)(4)—*Testing shall be conducted by the competent person as often as necessary during cleaning or cold work to assure that air concentrations are below 10 percent of the lower explosive limit and within the PELs and below IDLH levels. Factors such as, but not limited to, temperature, volatility of the residues and other existing conditions in and about the spaces are to be considered in determining the frequency of testing necessary to assure a safe atmosphere.*

Note to paragraph (b)(4): See Appendix A for additional information on frequency of testing.

1915.13(b)(7)—*A competent person shall test ventilation discharge areas and other areas where discharged vapors may collect to determine if vapors discharged from the spaces being ventilated are accumulating in concentrations hazardous to employees.*

1915.13(b)(8)—*If the tests required in paragraph (b)(7) [Requirements for Performing Cleaning or Cold Work] of this section indicate that concentrations of exhaust vapors that are hazardous to employees are accumulating, all work in the contaminated area shall be stopped until the vapors have dissipated or been removed.*

Exposure Monitoring

1915.13(b)(2)—*Testing shall be conducted by a competent person to determine the concentration of flammable, combustible, toxic, corrosive, or irritant vapors within the space prior to the beginning of cleaning or cold work.*

1915.13(b)(4)—*Testing shall be conducted by the competent person as often as necessary during cleaning or cold work to assure that air concentrations are below 10 percent of the lower explosive limit and within the PELs and below IDLH levels. Factors such as, but not limited to, temperature, volatility of the residues and other existing conditions in and about the spaces are to be considered in determining the frequency of testing necessary to assure a safe atmosphere.*

Note to paragraph (b)(4): See Appendix A for additional information on frequency of testing.

1915.13(b)(7)—*A competent person shall test ventilation discharge areas and other areas where discharged vapors may collect to determine if vapors discharged from the spaces being ventilated are accumulating in concentrations hazardous to employees.*

1915.13(b)(6)—*An employee may not enter a confined or enclosed space or other dangerous atmosphere if the concentration of flammable or combustible vapors in work spaces exceeds 10 percent of the lower explosive limit. **Exception:** An employee may enter for emergency rescue or for a short duration for installation of ventilation equipment provided:*

- **1915.13(b)(6)(ii)**—*The atmosphere in the space is monitored continuously;*

Note to paragraph (b)(6): Other provisions for work in IDLH and other dangerous atmospheres are located in paragraph (b)(6) and Subpart I [Personal Protective Equipment] of this part.

Certification

1915.13(b)(9)—*Only explosion-proof, self-contained portable lamps, or other electric equipment approved by a National Recognized Testing Laboratory (NRTL) for the hazardous location shall be used in spaces described in paragraph (a) [Locations Covered] of this section until such spaces have been certified as “Safe for Workers.”*

Note to paragraph (b)(9): Battery-fed, portable lamps or other electric equipment bearing the approval of a NRTL for the class, and division of the location in which they are used are deemed to meet the requirements of this paragraph.

Recordkeeping

1915.13(b)(9)—*Only explosion-proof, self-contained portable lamps, or other electric equipment approved by a National Recognized Testing Laboratory (NRTL) for the hazardous location shall be used in spaces described in paragraph (a) [Locations Covered] of this section until such spaces have been certified as “Safe for Workers.”*

1915.14—Hot Work

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Competent Person—perform test and inspections
- Signs, Markings and Tags—posting certificate
- Inspections and Tests—performance of test and inspections
- Exposure Monitoring—atmospheric conditions
- Certification*—spaces “Safe for Workers”
- Qualified Person—marine chemist or U.S. Coast Guard
- Recordkeeping*—certification, certificates

Competent Person

1915.14(b)(1)—Hot work is not permitted in or on the following spaces or adjacent spaces or other dangerous atmospheres *until they have been tested by a competent person and determined to contain no concentrations of flammable vapors equal to or greater than 10 percent of the lower explosive limit.*

Note to paragraph (b)(1): Reference paragraph (b)(1) for more specific information.

- **1915.14(b)(1)(iii)**—The engine room and boiler spaces for which a *Marine Chemist or a Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(i) [Hot Work Requiring Testing]* of this section.
- **1915.14(b)(1)(iv)**—Vessels and vessel sections for which a *Marine Chemist or Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(iv) [Hot Work Requiring Testing]* of this section.

Signs, Markings and Tags

1915.14(a)(2)—The *certificate* issued by the *Marine Chemist or Coast Guard authorized person* shall be posted in the immediate vicinity of the affected operations while they are in progress and *kept on file for a period of at least three months from the date of the completion of the operation for which the certificate was generated.*

1915.14(b)(2)—If the concentration of flammable vapors or gases is equal to or greater than 10 percent of the lower explosive limit in the space or an adjacent space where the hot work is to be done, then the space *shall be labeled “Not Safe for Hot Work” and ventilation shall be provided* at volumes and flow rates sufficient to ensure that the concentration of flammable vapors or gases is below 10 percent by volume of the lower explosive limit. The *warning label may be removed* when the concentration of flammable vapors and gases are below 10 percent lower explosive limit.

Inspections and Tests

1915.14(a)(1)—The employer shall ensure that hot work is not performed in or on any of the following confined and enclosed spaces and other dangerous atmospheres, boundaries of spaces or pipelines *until the work area has been tested and certified by a Marine Chemist or a U.S. Coast Guard authorized person as “Safe for Hot Work”.*

Note to paragraph (a)(1): Reference paragraph (a)(1) for further information.

1915.14(b)(1)—Hot work is not permitted in or on the following spaces or adjacent spaces or other dangerous atmospheres *until they have been tested by a competent person and determined to contain no concentrations of flammable vapors equal to or greater than 10 percent of the lower explosive limit:*

- **1915.14(b)(1)(iii)**—The engine room and boiler spaces for which a *Marine Chemist or a Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(i) [Hot Work Requiring Testing]* of this section.
- **1915.14(b)(1)(iv)**—Vessels and vessel sections for which a *Marine Chemist or Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(iv) [Hot Work Requiring Testing]* of this section.

1915.14(b)(2)—If the concentration of flammable vapors or gases is equal to or greater than 10 percent of the lower explosive limit in the space or an adjacent space where the hot work is to be done, then the space *shall be labeled “Not Safe for Hot Work” and ventilation shall be provided* at volumes and flow rates sufficient to ensure that the concentration of flammable vapors or gases is below 10 percent by volume of the lower explosive limit. The *warning label may be removed* when the concentration of flammable vapors and gases are below 10 percent lower explosive limit.

Exposure Monitoring

1915.14(b)(2)—If the concentration of flammable vapors or gases is equal to or greater than 10 percent of the lower explosive limit in the space or an adjacent space where the hot work is to be done, then the space *shall be labeled “Not Safe for Hot Work” and ventilation shall be provided* at volumes and flow rates sufficient to ensure that the concentration of flammable vapors or gases is below 10 percent by volume of the lower explosive limit. The *warning label may be removed* when the concentration of flammable vapors and gases are below 10 percent lower explosive limit.

Certification

1915.14(a)(1)—The employer shall ensure that hot work is not performed in or on any of the following confined and enclosed spaces and other dangerous atmospheres, boundaries of spaces or pipelines until the work area has been *tested and certified by a Marine Chemist or a U.S. Coast Guard authorized person as “Safe for Hot Work”*:

Note to paragraph (a)(1): Reference paragraph (a)(1) for additional requirements. For flammable liquids with flash points above 150 deg.F (65.6 deg.C), see paragraph (b) of this section.

1915.14(a)(2)—The *certificate issued by the Marine Chemist or Coast Guard authorized person shall be posted* in the immediate vicinity of the affected operations while they are in progress and kept on file for a period of at least three months from the *date of the completion of the operation for which the certificate was generated*.

1915.14(b)(1)—Hot work is not permitted in or on the following spaces or adjacent spaces or other dangerous atmospheres *until they have been tested by a competent person and determined* to contain no concentrations of flammable vapors equal to or greater than 10 percent of the lower explosive limit:

- **1915.14(b)(1)(iii)**—The engine room and boiler spaces for which a *Marine Chemist or a Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(i) [Hot Work Requiring Testing]* of this section.
- **1915.14(b)(1)(iv)**—Vessels and vessel sections for which a *Marine Chemist or Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(iv) [Hot Work Requiring Testing]* of this section.

Qualified Person

1915.14(a)(1)—The employer shall ensure that hot work is not performed in or on any of the following confined and enclosed spaces and other dangerous atmospheres, boundaries of spaces or pipelines until the work area has been *tested and certified by a Marine Chemist or a U.S. Coast Guard authorized person as “Safe for Hot Work”*.

Note to paragraph (a)(1): Reference paragraph (a)(1) for additional requirements. For flammable liquids with flash points above 150 deg.F (65.6 deg.C), see paragraph (b) of this section.

1915.14(a)(2)—The *certificate issued by the Marine Chemist or Coast Guard authorized person shall be posted* in the immediate vicinity of the affected operations while they are in progress and *kept on file for a period of at least three months from the date of the completion of the operation for which the certificate was generated*.

1915.14(b)(1)—Hot work is not permitted in or on the following spaces or adjacent spaces or other dangerous atmospheres *until they have been tested by a competent person and determined* to contain no concentrations of flammable vapors equal to or greater than 10 percent of the lower explosive limit:

- **1915.14(b)(1)(iii)**—The engine room and boiler spaces for which a *Marine Chemist or a Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(i) [Hot Work Requiring Testing]* of this section.
- **1915.14(b)(1)(iv)**—Vessels and vessel sections for which a *Marine Chemist or Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(iv) [Hot Work Requiring Testing]* of this section.

Note to paragraph (b)(1): Reference paragraph (b)(1) for additional requirements.

Recordkeeping

1915.14(a)(2)—The *certificate issued by the Marine Chemist or Coast Guard authorized person shall be posted* in the immediate vicinity of the affected operations while they are in progress and *kept on file for a period of at least three months from the date of the completion of the operation for which the certificate was generated*.

1915.14(b)(1)(iii)—The engine room and boiler spaces for which a *Marine Chemist or a Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(i) [Hot Work Requiring Testing]* of this section.

1915.14(b)(1)(iv)—Vessels and vessel sections for which a *Marine Chemist or Coast Guard authorized person certificate* is not required under *paragraph (a)(1)(iv) [Hot Work Requiring Testing]* of this section.

1915.15—Maintenance of Safe Conditions

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Competent Person—perform test and inspections, certificate
- Inspections and Tests—performance of test and inspections
- Exposure Monitoring—atmospheric conditions
- Certification*—spaces “Safe for Workers”
- Qualified Person—marine chemist or U.S. Coast Guard
- Recordkeeping*—certificate

Competent Person

1915.15(c)—*Tests to maintain the conditions of a Marine Chemist’s or Coast Guard authorized person’s certificates. A competent person shall visually inspect and test each space certified as “Safe for Workers” or “Safe for Hot Work,” as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the certificate after the certificate has been issued.*

1915.15(d)—*Change in the conditions of a Marine Chemist’s or Coast Guard authorized person’s certificate. If a competent person finds that the atmospheric conditions within a certified space fail to meet the applicable requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, work in the certified space shall be stopped and may not be resumed until the space has been retested by a Marine Chemist or Coast Guard authorized person and a new certificate issued in accordance with 1915.14(a) [Hot Work Requiring Testing].*

1915.15(e)—*Tests to maintain a competent person’s findings. After a competent person has conducted a visual inspection and tests required in Secs. 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part and determined a space to be safe for an employee to enter, he or she shall continue to test and visually inspect spaces as often as necessary to ensure that the required atmospheric conditions within the tested space are maintained.*

1915.15(f)—*Changes in conditions determined by competent person’s findings. After the competent person has determined initially that a space is safe for an employee to enter and he or she finds subsequently that the conditions within the tested space fail to meet the requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work], of this part, as applicable, work shall be stopped until the conditions in the tested space are corrected to comply with 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work], as applicable.*

Inspections and Tests

1915.15(b)—*Alteration of existing conditions. When a change that could alter conditions within a tested confined or enclosed space or other dangerous atmosphere occurs, work in the affected space or area shall be stopped. Work may not be resumed until the affected space or area is visually inspected and retested and found to comply with 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, as applicable.*

1915.15(c)—*Tests to maintain the conditions of a Marine Chemist’s or Coast Guard authorized person’s certificates. A competent person shall visually inspect and test each space certified as “Safe for Workers” or “Safe for Hot Work,” as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the certificate after the certificate has been issued.*

1915.15(d)—*Change in the conditions of a Marine Chemist’s or Coast Guard authorized person’s certificate. If a competent person finds that the atmospheric conditions within a certified space fail to meet the applicable requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, work in the certified*

space shall be stopped and may not be resumed until the space has been retested by a Marine Chemist or Coast Guard authorized person and a new **certificate** issued in accordance with 1915.14(a) —Hot Work Requiring Testing.

1915.15(e)—Tests to maintain a competent person’s findings. After a competent person has conducted a visual inspection and tests required in Secs. 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part and determined a space to be safe for an employee to enter, he or she shall continue to test and visually inspect spaces as often as necessary to ensure that the required atmospheric conditions within the tested space are maintained.

1915.15(f)—Changes in conditions determined by competent person’s findings. After the competent person has determined initially that a space is safe for an employee to enter and he or she finds subsequently that the conditions within the tested space fail to meet the requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work], of this part, as applicable, work shall be stopped until the conditions in the tested space are corrected to comply with 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work], as applicable.

Exposure Monitoring

1915.15(c)—Tests to maintain the conditions of a Marine Chemist’s or Coast Guard authorized person’s **certificates**. A competent person shall visually inspect and test each space certified as “Safe for Workers” or “Safe for Hot Work,” as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the **certificate** after the **certificate** has been issued.

1915.15(d)—Change in the conditions of a Marine Chemist’s or Coast Guard authorized person’s **certificate**. If a competent person finds that the atmospheric conditions within a certified space fail to meet the applicable requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, work in the certified space shall be stopped and may not be resumed until the space has been retested by a Marine Chemist or Coast Guard authorized person and a new **certificate** issued in accordance with 1915.14(a) [Hot Work Requiring Testing].

1915.15(e)—Tests to maintain a competent person’s findings. After a competent person has conducted a visual inspection and tests required in Secs. 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part and determined a space to be safe for an employee to enter, he or she shall continue to test and visually inspect spaces as often as necessary to ensure that the required atmospheric conditions within the tested space are maintained.

1915.15(f)—Changes in conditions determined by competent person’s findings. After the competent person has determined initially that a space is safe for an employee to enter and he or she finds subsequently that the conditions within the tested space fail to meet the requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work], of this part, as applicable, work shall be stopped until the conditions in the tested space are corrected to comply with 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work], as applicable.

Certification

1915.15(a)—Preventing hazardous materials from entering. Pipelines that could carry hazardous materials into spaces that have been certified “Safe for Workers” or “Safe for Hot Work” shall be disconnected, blanked off, or otherwise blocked by a positive method to prevent hazardous materials from being discharged into the space.

1915.15(c)—Tests to maintain the conditions of a Marine Chemist’s or Coast Guard authorized person’s **certificates**. A competent person shall visually inspect and test each space certified as “Safe for Workers” or “Safe for Hot Work,” as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the **certificate** after the **certificate** has been issued.

1915.15(d)—Change in the conditions of a *Marine Chemist’s or Coast Guard authorized person’s certificate*. If a *competent person* finds that the atmospheric conditions within a *certified space* fail to meet the applicable requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, work in the *certified space* shall be stopped and may not be resumed until the space has been *retested by a Marine Chemist or Coast Guard authorized person* and a new *certificate* issued in accordance with 1915.14(a) [Hot Work Requiring Testing].

Qualified Person

1915.15(c)—Tests to maintain the conditions of a *Marine Chemist’s or Coast Guard authorized person’s certificates*. A *competent person* shall visually inspect and test each space certified as “Safe for Workers” or “Safe for Hot Work,” as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the *certificate* after the *certificate* has been issued.

1915.15(d)—Change in the conditions of a *Marine Chemist’s or Coast Guard authorized person’s certificate*. If a *competent person* finds that the atmospheric conditions within a *certified space* fail to meet the applicable requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, work in the *certified space* shall be stopped and may not be resumed until the space has been *retested by a Marine Chemist or Coast Guard authorized person* and a new *certificate* issued in accordance with 1915.14(a) [Hot Work Requiring Testing].

Recordkeeping

1915.15(c)—Tests to maintain the conditions of a *Marine Chemist’s or Coast Guard authorized person’s certificates*. A *competent person* shall visually inspect and test each space certified as “Safe for Workers” or “Safe for Hot Work,” as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the *certificate* after the *certificate* has been issued.

1915.15(d)—Change in the conditions of a *Marine Chemist’s or Coast Guard authorized person’s certificate*. If a *competent person* finds that the atmospheric conditions within a *certified space* fail to meet the applicable requirements of 1915.12 [Precautions and the Order of Testing Before Entering Confined and Enclosed Spaces and Other Dangerous Atmospheres], 1915.13 [Cleaning and Other Cold Work], and 1915.14 [Hot Work] of this part, work in the *certified space* shall be stopped and may not be resumed until the space has been *retested by a Marine Chemist or Coast Guard authorized person* and a new *certificate* issued in accordance with 1915.14(a) [Hot Work Requiring Testing].

1915.16—Warning Signs and Labels

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—performance of test and inspections
- Certification*—spaces “Safe for Workers”
- Signs, Markings and Tags—posting warning signs

Inspections and Tests

1915.16(b)—Posting of large work areas. A warning sign or label required by paragraph (a) [Preventing Hazardous Materials From Entering] of this section need not be posted at an individual tank, compartment or work space within a work area if the entire work area has been *tested and certified*: not safe for workers, not safe for hot work, and *if the sign or label to this effect is posted conspicuously at each means of access to the work area*.

Certification

1915.16(b)—Posting of large work areas. A warning sign or label required by paragraph (a) [Preventing Hazardous Materials From Entering] of this section need not be posted at an individual tank, compartment or work space within a work area if the entire work area has been *tested and certified*: not safe for workers, not safe for hot work, and *if the sign or label to this effect is posted conspicuously at each means of access to the work area*.

Signs, Markings and Tags

1915.16(a)—Employee *comprehension of signs and labels*. The employer shall ensure that *each sign or label posted* to comply with the requirements of this subpart is presented in a manner that *can be perceived and understood* by all employees.

1915.16(b)—*Posting of large work areas*. A warning sign or label required by paragraph (a) [*Preventing Hazardous Materials From Entering*] of this section need not be posted at an individual tank, compartment or work space within a work area if the entire work area has been *tested and certified*: not safe for workers, not safe for hot work, and *if the sign or label to this effect is posted conspicuously at each means of access* to the work area.

29 CFR 1915 Subpart C—Surface Preparation and Preservation

1915.32—Toxic Cleaning Solvents

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Exposure Monitoring—toxic vapors

Exposure Monitoring

1915.32(a)(2)—Either natural ventilation or mechanical exhaust ventilation shall be used to remove the vapor at the source and to dilute the concentration of vapors in the working space to a concentration which is safe for the entire work period.

1915.34—Mechanical Paint Removers

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—hose and fittings

Inspections and Tests

1915.34(c)(2)—Replacement. Hoses and all fittings used for abrasive blasting shall be inspected frequently to insure timely replacement before an unsafe amount of wear has occurred.

1915.35—Painting

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—lighting cables, ventilation
- Exposure Monitoring—concentration of solvent vapors
- Competent Person—inspect power and lighting cables

Inspections and Tests

1915.35(b)(4)—Exhaust ducts shall discharge clear of working areas and away from sources of possible ignition. *Periodic tests shall be made* to ensure that the exhausted vapors are not accumulating in other areas within or around the vessel or dry dock.

1915.35(b)(8)—A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

Exposure Monitoring

1915.35(b)—Paints and tank coatings dissolved in highly volatile, toxic and flammable solvents. Several organic coatings, adhesives and resins are dissolved in highly toxic, flammable and explosive solvents with flash points below 80 deg. F. *Work involving such materials shall be done only when all of the following special precautions have been taken:*

- **1915.35(b)(1)**—Sufficient exhaust ventilation shall be provided to keep the concentration of solvent vapors below ten (10) percent of the lower explosive limit. *Frequent tests shall be made by a competent person to ascertain the concentration.*
- **1915.35(b)(3)**—Ventilation shall be continued after the completion of painting until the space or compartment is gas free. *The final determination as to whether the space or compartment is gas free shall be made after the ventilating equipment has been shut off for at least 10 minutes.*

Competent Person

1915.35(b)(1)—Sufficient exhaust ventilation shall be provided to keep the concentration of solvent vapors below ten (10) percent of the lower explosive limit. *Frequent tests shall be made by a competent person to ascertain the concentration.*

1915.35(b)(8)—A *competent person shall inspect all power and lighting cables* to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

1915.36—Flammable Liquids

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—lighting cables, concentration of solvent vapors
- Exposure Monitoring—concentration of solvent vapors
- Competent Person—inspect power and lighting cables

Inspections and Tests

1915.36(a)—In all cases when liquid solvents, paint and preservative removers, paints or vehicles, other than those covered by *1915.35(b)[Painting]*, are capable of producing a flammable atmosphere under the conditions of use, the following precautions shall be taken:

- **1915.36(a)(2)**—Ventilation shall be provided in sufficient quantities to *keep the concentration of vapors below ten (10) percent of their lower explosive limit. Frequent tests shall be made by a competent person* to ascertain the concentration.

1915.36(a)(5)—A *competent person shall inspect all power and lighting cables* to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

Exposure Monitoring

1915.36(a)—In all cases when liquid solvents, paint and preservative removers, paints or vehicles, other than those covered by *1915.35(b)[Painting]*, are capable of producing a flammable atmosphere under the conditions of use, the following precautions shall be taken:

- **1915.36(a)(2)**—Ventilation shall be provided in sufficient quantities to *keep the concentration of vapors below ten (10) percent of their lower explosive limit. Frequent tests shall be made by a competent person* to ascertain the concentration.

Competent Person

1915.36(a)—In all cases when liquid solvents, paint and preservative removers, paints or vehicles, other than those covered by *1915.35(b)[Painting]*, are capable of producing a flammable atmosphere under the conditions of use, the following precautions shall be taken:

- **1915.36(a)(2)**—Ventilation shall be provided in sufficient quantities to *keep the concentration of vapors below ten (10) percent of their lower explosive limit. Frequent tests shall be made by a competent person* to ascertain the concentration.

1915.36(a)(5)—A *competent person shall inspect all power and lighting cables* to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

29 CFR 1915 Subpart D—Welding, Cutting and Heating

1915.51—Ventilation and Protection in Welding, Cutting and Heating

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Exposure Monitoring—concentration of fumes within safe limits

Exposure Monitoring

1915.51(b)(1)(ii)—General mechanical ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to *maintain welding fumes and smoke within safe limits*.

1915.51(b)(1)(iii)—Local exhaust ventilation shall consist of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system shall be of sufficient capacity and so arranged as to remove fumes and smoke at the source and *keep the concentration of them in the breathing zone within safe limits*.

1915.53—Welding, Cutting and Heating in Way of Preservative Coatings

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—test by competent person
- Competent Person—tests

Inspections and Tests

1915.53(b)—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.

1915.53(e)(1)—*A competent person shall test the atmosphere* in the space to ensure that it does not contain explosive vapors, since there is a possibility that some soft and greasy preservatives may have flash points below temperatures which may be expected to occur naturally. If such vapors are determined to be present, no hot work shall be commenced until such precautions have been taken as will ensure that the welding, cutting or heating can be performed in safety.

1915.53(f)—Immediately after welding, cutting or heating is commenced in enclosed spaces on metal covered by soft and greasy preservatives, and at frequent intervals thereafter, *a competent person shall make tests* to ensure that no flammable vapors are being produced by the coatings. If such vapors are determined to be present, the operation shall be stopped immediately and shall not be resumed until such additional precautions have been taken as are necessary to ensure that the operation can be resumed safely.

Competent Person

1915.53(b)—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.

1915.53(e)(1)—*A competent person shall test the atmosphere* in the space to ensure that it does not contain explosive vapors, since there is a possibility that some soft and greasy preservatives may have flash points below temperatures which may be expected to occur naturally. If such vapors are determined to be present, no hot work shall be commenced until such precautions have been taken as will ensure that the welding, cutting or heating can be performed in safety.

1915.53(f)—Immediately after welding, cutting or heating is commenced in enclosed spaces on metal covered by soft and greasy preservatives, and at frequent intervals thereafter, *a competent person shall make tests* to ensure that no flammable vapors are being produced by the coatings. If such vapors are determined to be present, the operation shall be stopped immediately and shall not be resumed until such additional precautions have been taken as are necessary to ensure that the operation can be resumed safely.

1915.54—Welding, Cutting and Heating of Hollow Metal Containers and Structures Not Covered By 1915.12

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—testing for flammable liquids or vapors
- Competent Person—inspecting structural voids

Inspections and Tests

1915.54(c)—Before welding, cutting, heating or brazing is begun on structural voids such as skegs, bilge keels, fair waters, masts, booms, support stanchions, pipe stanchions or railings, *a competent person shall inspect the object and, if necessary, test it* for the presence of flammable liquids or vapors. If flammable liquids or vapors are present, the object shall be made safe.

1915.54(d)—Objects such as those listed in *paragraph (c)* of this section *shall also be inspected to determine* whether water or other non-flammable liquids are present which, when heated, would build up excessive pressure. If such liquids are determined to be present, the object shall be vented, cooled, or otherwise made safe during the application of heat.

Competent Person

1915.54(c)—Before welding, cutting, heating or brazing is begun on structural voids such as skegs, bilge keels, fair waters, masts, booms, support stanchions, pipe stanchions or railings, *a competent person shall inspect the object and, if necessary, test it* for the presence of flammable liquids or vapors. If flammable liquids or vapors are present, the object shall be made safe.

1915.55—Gas Welding and Cutting

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspecting hoses
- Signs, Markings and Tags—name on fuel gas and oxygen manifolds

Inspections and Tests

1915.55(f)(3)—All hose 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 shift*. Defective hose shall be removed from service.

1915.55(f)(4)—Hose which has been subjected 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 two hundred (200) psi. Defective hose or hose in doubtful condition shall not be used.

1915.55(g)(2)—Torches *shall be inspected at the beginning of each shift* for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used.

Signs, Markings and Tags

1915.55(e)(1)—Fuel gas and oxygen manifolds *shall bear the name of the substance they contain in letters at least one (1) inch high which shall be either painted on the manifold or on a sign permanently attached to it.*

1915.56—Arc Welding and Cutting

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspecting hoses
- Training and Communications—operating instructions

Inspections and Tests

1915.56(c)(4)—When a structure or pipe line is continuously employed as a ground return circuit, all joints shall be bonded, and *periodic inspections shall be conducted* to ensure that no condition of electrolysis or fire hazard exists by virtue of such use.

1915.56(c)(5)—The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current. Grounding circuits, other than by means of the vessel's structure, *shall be checked* to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

1915.56(c)(6)—All ground connections *shall be inspected* to ensure that they are mechanically strong and electrically adequate for the required current.

Training and Communications

1915.56(d)—Employers *shall instruct employees in the safe means* of arc welding and cutting.

Note to paragraph (d): Reference paragraph (d) for further requirements.

1915.57—Uses of Fissionable Material in Ship Repairing and Shipbuilding

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Competent Person—use of radioactive material
- Training and Communications—competent person trained
- Qualified Person—licensed persons

Competent Person

1915.57(b)—Any activity which involves the use of radioactive material, *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.*

Training and Communications

1915.57(b)—Any activity which involves the use of radioactive material, *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.*

Qualified Person

1915.57(b)—Any activity which involves the use of radioactive material, *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.*

29 CFR 1915 Subpart E—Scaffolds, Ladders and Other Working Surfaces

1915.71—Scaffolds or Staging

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Competent Person—use of radioactive material
- Inspections and Tests—examine manila and wire ropes

Competent Person

1915.71(b)(7)—No scaffold shall be erected, moved, dismantled or altered *except under the supervision of competent persons.*

Inspections and Tests

1915.71(f)(3)—Manila and wire ropes *shall be carefully examined before each operation and thereafter as frequently as may be necessary* to ensure their safe condition.

1915.72—Ladders

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—ladders with defects
- Other—consensus standards

Inspections and Tests

1915.72(a)(1)—The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. When ladders with such *defects are discovered*, they shall be immediately withdrawn from service. *Inspection of metal ladders* shall include checking for corrosion of interiors of open end, hollow rungs.

Other

1915.72(a)(4)—Portable metal ladders shall be of strength equivalent to that of wood ladders. Manufactured portable metal ladders provided by the employer *shall be in accordance with the provisions of ANSI Standard A14.2-1972: Safety Requirements for Portable Metal Ladders [incorporated by reference, see § 1915.5].*

1915.72(a)(6)—Manufactured portable wood ladders provided by the employer *shall be in accordance with the provisions of ANSI Standard A14.1-1975: Safety Requirements for Portable Wood Ladders [incorporated by reference, see § 1915.5].*

1915.74—Access to Vessels

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspect gangways on vessels
- Certification—U.S. Coast Guard
- Qualified Person—U.S. Coast Guard

Inspections and Tests

1915.74(a)(3)—Gangways on vessels *inspected and certificated by the U.S. Coast Guard* are deemed to meet the foregoing requirements, except in cases where the vessel's regular gangway is not being used.

Certification

1915.74(a)(3)—Gangways on vessels *inspected and certificated by the U.S. Coast Guard* are deemed to meet the foregoing requirements, except in cases where the vessel's regular gangway is not being used.

Qualified person

1915.74(a)(3)—Gangways on vessels *inspected and certificated* by the U.S. Coast Guard are deemed to meet the foregoing requirements, except in cases where the vessel's regular gangway is not being used.

1915.76—Access to Cargo Spaces and Confined Spaces

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—fixed ladder
- Training and Communications—informing winchman or crane signalman

Inspections and Tests

1915.76(a)(2)—When any *fixed ladder is visibly unsafe*, the employer shall prohibit its use by employees.

Training and Communications

1915.76(a)(5)—Fixed ladders or straight ladders provided for access to cargo spaces shall not be used at the same time that cargo drafts, equipment, materials, scrap or other loads are entering or leaving the hold. *Before using these ladders to enter or leave the hold, the employee shall be required to inform the winchman or crane signalman of his intention.*

29 CFR 1915 Subpart F—General Working Conditions

1915.81—Housekeeping

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures —housekeeping practices

Programs, Policies and Procedures

1915.81(a)(1)—The employer shall *establish and maintain good housekeeping practices* to eliminate hazards to employees to the extent practicable.

1915.81(c)(3)—Is maintained, so far as practicable, in a dry condition. When a wet process is used, the employer shall maintain drainage and provide false floors, platforms, mats, or other dry standing places. When the employer *demonstrates that this procedure is not practicable*, the employer shall provide each employee working in the wet process with protective footwear, in accordance with 29 CFR Part 1915, Subpart I [*Personal Protective Equipment*].

1915.82—Lighting

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Other—consensus standard

Other

1915.82(a)(3)—For vessels and vessel sections, the employer shall provide illumination that meets the levels set forth in the table to paragraph (a)(2)—*General Requirements* or meet ANSI/IESNA RP-7-01 [*incorporated by reference, see 1915.5*].

1915.83—Utilities

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications*—written or oral determination
- Signs, Markings and Tags—gauge and valve legible
- Qualified Person—determination

Training and Communications

1915.83(a)(1)—The employer shall ensure that the vessel's steam piping system, including hoses, is designed to safely handle the working pressure prior to supplying steam from an outside source. The employer shall obtain a **written** or oral determination from a responsible vessel's representative, a contractor, or any other person who is qualified by training, knowledge, or experience to make such determination that the working pressure of the vessel's steam piping system is safe.

1915.83(c)(3)—Ensure that each circuit to be energized is in a safe condition. The employer must obtain a determination of the safe condition, *either orally or in writing*, from a responsible vessel's representative, a contractor, or any other person who is qualified by training, knowledge, or experience to make such determination.

Signs, Markings and Tags

1915.83(a)(2)(iv)—Each pressure gauge and relief valve is *legible* and located so it is *visible and readily accessible*.

Qualified Person

1915.83(a)(1)—The employer shall ensure that the vessel's steam piping system, including hoses, is designed to safely handle the working pressure prior to supplying steam from an outside source. The employer shall obtain a **written** or oral determination from a responsible vessel's representative, a contractor, or any other person who is qualified by training, knowledge, or experience to make such determination that the working pressure of the vessel's steam piping system is safe.

1915.83(c)(3)—Ensure that each circuit to be energized is in a safe condition. The employer must obtain a determination of the safe condition, *either orally or in writing, from a responsible vessel's representative, a contractor, or any other person who is qualified by training, knowledge, or experience to make such determination.*

1915.84—Working Alone

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications—sight or verbal communication

Training and Communications

1915.84(a)—Except as provided in § 1915.51(c)(3) [*Welding, Cutting and Heating in Confined Spaces*] of this part, whenever an employee is working alone, such as in a confined space or isolated location, the employer shall *account for each employee:*

- **1915.84(a)(1)**—*Throughout each workshift at regular intervals appropriate to the job assignment to ensure the employee's safety and health; and*
- **1915.84(a)(2)**—*At the end of the job assignment or at the end of the workshift, whichever occurs first.*

1915.84(b)—The employer *shall account for each employee by sight or verbal communication.*

1915.87—Medical Services and First Aid

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications—training first aid providers
- Certification*—first aid and CPR certifications
- Inspections and Tests—inspect first aid supplies and stretchers
- Signs, Markings and Tags—mark location of stretchers
- Programs, Policies and Procedures—emergency medical assistance available
- Recordkeeping*—certification

Training and Communications

1915.87(c)(1)—The employer *shall ensure that there is an adequate number of employees trained as first aid providers at each worksite during each workshift unless:*

- **1915.87(c)(1)(i)**—*There is an on-site clinic or infirmary with first aid providers during each workshift; or*
- **1915.87(c)(1)(ii)**—*The employer can demonstrate that outside first aid providers (i.e., emergency medical services) can reach the worksite within five (5) minutes of a report of injury or illness. The employer must take appropriate steps to ascertain that emergency medical assistance will be readily available promptly if an injury or illness occurs.*

1915.87(c)(3)—The employer shall use the following factors in *determining* the number and location of employees *who must have first aid training:* size and location of each worksite; the number of employees at each worksite; the hazards present at each worksite; and the distance of each worksite from hospitals, clinics, and rescue squads.

1915.87(c)(4)—The employer shall ensure that *first aid providers are trained* to render first aid, including cardiopulmonary resuscitation (CPR).

Certification

1915.87(c)(5)—The employer *shall ensure that each first aid provider maintains current first aid and CPR certifications*, such as issued by the Red Cross, American Heart Association, or other equivalent organization.

Inspections and Tests

1915.87(d)(6)—The employer *shall inspect first aid supplies at sufficient intervals* to ensure that they are adequate and in a serviceable condition.

1915.87(f)(4)—The employer *shall inspect stretchers, or the equivalent, and related equipment at intervals* that ensure the equipment remains in a safe and serviceable condition, *but at least once a year.*

Signs, Markings and Tags

1915.87(f)(3)—The employer shall store basket stretchers, or the equivalent, and related equipment (i.e., restraints, blankets) in a *clearly marked location* in a manner that prevents damage and protects the equipment from environmental conditions.

Programs, Policies and Procedures

1915.87(c)(1)(ii)—The employer *can demonstrate that outside first aid providers* (i.e., emergency medical services) can reach the worksite *within five (5) minutes of a report of injury or illness.* The employer *must take appropriate steps* to ascertain that emergency medical assistance will be readily available promptly if an injury or illness occurs.

1915.87(c)(2)—The employer shall *ensure that a first aid provider is able to reach an injured/ill employee within five (5) minutes* of a report of a serious injury, illness, or accident such as one involving cardiac arrest, acute breathing problems, uncontrolled bleeding, suffocation, electrocution, or amputation.

Recordkeeping

1915.87(c)(5)—The employer *shall ensure that each first aid provider maintains current first aid and CPR certifications*, such as issued by the Red Cross, American Heart Association, or other equivalent organization.

1915.88—Sanitation

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications—informing employees of toxic substances
- Signs, Markings and Tags—mark non-potable water
- Programs, Policies and Procedures—schedule for servicing, cleaning

Training and Communications

1915.88(e)(3)—The employer *shall inform each employee* engaged in the application of paints or coatings or in other operations in which hazardous or toxic substances can be ingested or absorbed about the need for removing surface contaminants from their skins surface by thoroughly washing their hands and face at the end of the workshift and prior to eating, drinking, or smoking.

Signs, Markings and Tags

1915.88(c)(2)—The employer *shall clearly mark* non-potable water supplies and outlets as “not safe for health or personal use.”

Programs, Policies and Procedures

1915.88(a)(2)—The employer shall *establish and implement a schedule* for servicing, cleaning, and supplying each facility to ensure it is maintained in a clean, sanitary, and serviceable condition.

1915.88(d)(1)(iii)—The employer shall *establish and implement a schedule* to ensure that each sewered and portable toilet is maintained in a clean, sanitary, and serviceable condition.

1915.88(j)(2)—Where vermin are detected, the employer shall *implement and maintain an effective vermin-control program.*

1915.89—Control of Hazardous Energy (Lockout/Tags-Plus)

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications—use of locks and tags
- Signs, Markings and Tags—affixing and removing tags
- Programs, Policies and Procedures*—locks and tags-plus systems
- Inspections and Tests*—verifying and testing equipment

- Recordkeeping*—maintaining logs
- Other—Appendix A

Training and Communications

1915.89(a)(3)—When other standards in *29 CFR part 1915 [Maritime]* and applicable standards in *29 CFR part 1910 [General Industry]* require the use of a lock or tag, the employer *shall use and supplement them with the procedural and training requirements* specified in this section.

1915.89(b)—The employer shall *establish and implement a written program and procedures* for lockout and tags-plus systems to control hazardous energy during the servicing of any machinery, equipment, or system in shipyard employment. The *program shall cover*:

- **1915.89(b)(4)**—Employee *information and training* in accordance with *paragraph (o) [Information and Training]* of this section;

1915.89(e)(1)—*Before an authorized employee shuts down any machinery, equipment, or system, the employer shall*:

- **1915.89(e)(1)(i)**—Ensure that the *authorized employee has knowledge*.

Note to paragraph (e)(1)(i): *Reference paragraph (e)(1)(i) for further requirements.*

- **1915.89(e)(1)(ii)**—*Notify each affected employee* that the machinery, equipment, or system will be shut down and deenergized prior to servicing, and that a *lockout/tags-plus* system will be implemented.

1915.89(h)—In each situation in which a *lockout/tags-plus* system must be removed temporarily and the machinery, equipment, or system restarted to test it or to position a component, the employer shall *ensure that the authorized employee* does a specific sequence.

Note 1 to paragraph (h): *Reference paragraph (h) for the specific sequence to be followed.*

Note 2 to paragraph (h): *When the Navy ship's force serves as the lockout/tags-plus coordinator, performs the testing, and maintains control of the lockout/tags-plus systems or devices during testing, the employer is in compliance with paragraph (h) when the employer's authorized employee acknowledges to the lockout/tags-plus coordinator that the employer's personnel and tools are clear and the machinery, equipment, or system being serviced is ready for testing, and upon completion of the testing, verifies the reapplication of the lockout/tags-plus systems.*

1915.89(i)(1)—Before removing any lockout/tags-plus system and restoring the machinery, equipment, or system to use, the employer *shall ensure that the authorized employee* does the following:

- **1915.89(i)(1)(i)**—*Notifies all other authorized and affected employees* that the *lockout/tags-plus* system will be removed;
- **1915.89(i)(1)(ii)**—*Ensures that all employees* in the work area have been safely positioned or removed; and
- **1915.89(i)(1)(iii)**—*Inspects the work area* to ensure that nonessential items have been removed and machinery, equipment, or system components are operationally intact.

1915.89(i)(3)—When the *authorized employee who applied the lockout/tags-plus system is not available* to remove it, the employer may direct removal by another *authorized employee*, provided the employer developed and incorporated into the *lockout/tags-plus program the specific procedures and training that address such removal, and demonstrates that the specific procedures* used provide a level of employee safety that is at least as effective in protecting employees as removal of the system by the *authorized employee* who applied it. After meeting these requirements, the employer shall do the following in sequence:

- **1915.89(i)(3)(i)**—*Verify that the authorized employee* who applied the *lockout/tags-plus* system is not in the facility;
- **1915.89(i)(3)(ii)**—*Make all reasonable efforts to contact the authorized employee to inform him/her* that the *lockout/tags-plus* system has been removed; and
- **1915.89(i)(3)(iii)**—*Ensure that the authorized employee who applied the lock or tags-plus system has knowledge of the removal* before resuming work on the affected machinery, equipment, or system.

Note to paragraph (i) of this section: *When the Navy ship's force serves as lockout/tags-plus coordinator and removes the lockout/tags-plus systems or devices, the employer is in compliance with the requirements in paragraph (i) of this section when the employer's authorized employee informs the lockout/tags-plus coordinator that the procedures in paragraph (i)(1) of this section have been performed.*

1915.89(j)(1)—*Before an authorized employee turns on any machinery, equipment, or system after servicing is completed, the employer shall ensure that the authorized employee has knowledge of the source, type, and magnitude of the hazards associated with energization or startup, and the means to control these hazards.*

1915.89(l)(1)—*The host employer shall establish and implement procedures to protect employees from hazardous energy in multi-employer worksites. The procedures shall specify the responsibilities for host and contract employers.*

1915.89(l)(2)—*The host employer shall carry out the following responsibilities in multi-employer worksites:*

- **1915.89(l)(2)(i)**—*Inform each contract employer about the content of the host employer's lockout/tags-plus program and procedures;*
- **1915.89(l)(2)(ii)**—*Instruct each contract employer to follow the host employer's lockout/tags-plus program and procedures; and*
- **1915.89(l)(2)(iii)**—*Ensure that the lockout/tags-plus coordinator knows about all servicing operations and communicates with each contract employer who performs servicing or works in an area where servicing is being conducted.*

1915.89(l)(3)—*Each contract employer shall perform the following duties when working in a multi-employer worksite:*

- **1915.89(l)(3)(i)**—*Follow the host employer's lockout/tags-plus program and procedures;*
- **1915.89(l)(3)(ii)**—*Ensure that the host employer knows about the lockout/tags-plus hazards associated with the contract employer's work and what the contract employer is doing to address these hazards; and*
- **1915.89(l)(3)(iii)**—*Inform the host employer of any previously unidentified lockout/tags-plus hazards that the contract employer identifies at the multi-employer worksite.*

Note 1 to paragraph (l): *The host employer may include provisions in its contract with the contract employer for the contract employer to have more control over the lockout/tags-plus program if such provisions will provide an equivalent level of protection for the host employer's and contract employer's employees as that provided by paragraph (l) of this section.*

Note 2 to paragraph (l): *When the U.S Navy contracts directly with a contract employer and the Navy ship's force maintains control of the lockout/tags-plus systems or devices, that contract employer shall consider the Navy to be the host employer for the purposes of § 1915.89(l)(3).*

1915.89(o)(1)—*The employer shall train each employee in the applicable requirements of this section no later than October 31, 2011.*

1915.89(o)(2)—*The employer shall train each employee who is, or may be, in an area where lockout/tags-plus systems are being used.*

Note to paragraph (o)(2): *Reference paragraph (o)(2) for training requirements.*

1915.89(o)(3)—*In addition to training affected employees in the requirements in paragraph (o)(2)—information and Training of this section, the employer also shall train each affected employee.*

Note to paragraph (o)(3): *Reference paragraph (o)(3) for training requirements for affected employees.*

1915.89(o)(4)—*In addition to training authorized employees in the requirements in paragraphs (o)(2) and (o)(3)—Information and Training of this section, the employer also shall train each authorized employee.*

Note to paragraph (o)(4): *Reference paragraph (o)(4) for training requirements for authorized employees.*

1915.89(o)(5)—*In addition to training lockout/tags-plus coordinators in the requirements in paragraphs (o)(2), (o)(3), and (o)(4)—Information and Training of this section, the employer shall train each lockout/tags-plus coordinator.*

- **1915.89(o)(5)(ii)**—*How to accurately document lockout/tags-plus systems and maintain the lockout/tags-plus log.*

Note to paragraph (o)(5): Reference paragraph (o)(5) for training requirements for the coordinator.

1915.89(o)(6)(i)—The employer shall *retrain each employee*, as applicable, whenever:

- **1915.89(o)(6)(i)(A)**—There is a *change in his/her job assignment* that presents new hazards or requires a greater degree of knowledge about the *employer's lockout/tags-plus program or procedures*;
- **1915.89(o)(6)(i)(B)**—There is a *change in machinery, equipment, or systems to be serviced* that presents a new energy-control hazard;
- **1915.89(o)(6)(i)(C)**—There is a *change in the employer's lockout/tags-plus program or procedures*; or
- **1915.89(o)(6)(i)(D)**—It is necessary to *maintain the employee's proficiency*.

1915.89(o)(6)(ii)—The employer also shall *retrain each employee*, as applicable, whenever an incident investigation or *program audit* indicates deviations or inadequacies.

Note to paragraph (o)(6)(ii): Reference paragraph (o)(6)(ii) for training requirements for the coordinator.

1915.89(o)(6)(iii)—The employer shall ensure that *retraining establishes the required employee knowledge and proficiency* in the employer's *lockout/tags-plus* program and procedures and in any new or revised *energy-control* procedures.

1915.89(o)(7)—Upon completion of *employee training*, the employer shall keep a **record** that the employee *accomplished the training*, and that this *training is current*. The **training record** shall contain at least the employee's name, *date of training*, and the *subject of the training*.

1915.89(p)(2)—Promptly *but not later than 24 hours* following the incident, the employer shall initiate an incident investigation and *notify each employee* who was, or could reasonably have been, affected by the incident.

1915.89(p)(5)—The employer shall *review the written incident report with each employee* whose job tasks are relevant to the incident investigation findings, including contract employees when applicable.

1915.89(q)(5)—The employer shall promptly *communicate the findings and recommendations* in the **written audit report** to each employee having a job task that may be affected by such findings and recommendations.

Signs, Markings and Tags

1915.89(c)(1)—The employer shall ensure that, before *any authorized employee performs* servicing when energization or startup, or the release of hazardous energy, may occur, all *energy sources are identified* and isolated, and the machinery, equipment, or system is rendered inoperative.

1915.89(c)(4)(i)—At least one energy-isolating device with a *tag affixed* to it; and

- **1915.89(c)(4)(ii)**—*At least one additional safety measure* that, along with the energy-isolating device and tag required in (c)(4)(i) [General Requirements] of this section, will provide the equivalent safety available from the use of a lock.

Note to paragraph (c)(4): When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of paragraph (c)(4)(ii) [General Requirements] of this section shall not apply, provided that the employer complies with the verification procedures in paragraph (g) [Procedures for Verification of Deenergization and Isolation] of this section.

1915.89(c)(6)(i)—When a *tag is used on an energy-isolating device* that is capable of being locked out, the *tag shall be attached* at the same location that the lock would have been attached.

1915.89(c)(6)(ii)—The employer shall demonstrate that the use of a *tags-plus system* will provide a level of safety equivalent to that obtained by using a lock. In demonstrating that an equivalent level of safety is achieved, the employer shall:

- **1915.89(c)(6)(ii)(A)**—*Demonstrate full compliance with all tags-plus-related provisions* of this standard.

Note to paragraph (c)(6): When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of paragraph (c)(6)(ii)(B) of this section do not apply, provided that the employer complies with the verification procedures in paragraph (g) [Procedures for Verification of Deenergization and Isolation] of this section.

1915.89(f)(1)—The employer shall ensure that *only an authorized employee* applies a *lockout/tags-plus system*.

1915.89(f)(4)—When the *tag cannot be affixed* directly to the energy-isolating device the employer shall ensure that the *authorized employee locates* it as close as safely possible to the device, in a safe and immediately obvious position.

1915.89(h)—In each situation in which a *lockout/tags-plus system must be removed* temporarily and the machinery, equipment, or system *restarted to test it or to position a component*, the employer shall ensure that the authorized employee does in a sequence.

Note 1 to paragraph (h): *Reference paragraph (h) for the specific sequence.*

Note 2 to paragraph (h): *When the Navy ship's force serves as the lockout/tags-plus coordinator, performs the testing, and maintains control of the lockout/tags-plus systems or devices during testing, the employer is in compliance with paragraph (h) [Procedures for Testing] when the employer's authorized employee acknowledges to the lockout/tags-plus coordinator that the employer's personnel and tools are clear and the machinery, equipment, or system being serviced is ready for testing, and upon completion of the testing, verifies the reapplication of the lockout/tags-plus systems.*

1915.89(i)(1)—Before removing any *lockout/tags-plus system* and restoring the machinery, equipment, or system to use, the employer shall ensure that the *authorized employee* does the following:

- **1915.89(i)(1)(i)**—*Notifies all other authorized and affected employees that the lockout/tags-plus system will be removed;*

1915.89(k)(1)—The employer shall:

- **1915.89(k)(1)(iii)**—Ensure that the *primary authorized employee obtains approval* from the lockout/tags-plus coordinator to *apply and remove the lockout/tags-plus system*; and

1915.89(k)(2)—The employer shall either:

- **1915.89(k)(2)(i)**—Have *each authorized employee apply a personal lockout/tags-plus system*; or
- **1915.89(k)(2)(ii)**—Use a procedure that the employer can demonstrate affords each authorized employee a level of protection equivalent to the protection provided by having each *authorized employee apply a personal lockout/tags-plus system*. Such procedures shall incorporate a means for *each authorized employee to have personal control of, and accountability for, his or her protection* such as, but not limited to, having each *authorized employee*:
- **1915.89(k)(2)(ii)(A)**—*Sign a group tag (or a group tag equivalent), attach a personal identification device to a group lockout device, or performs a comparable action before servicing is started*; and
- **1915.89(k)(2)(ii)(B)**—*Sign off the group tag (or the group tag equivalent), remove the personal identification device, or perform a comparable action when servicing is finished.*

Note to paragraph (k)(2): *When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and prohibits the employer from applying or removing the lockout/tags-plus system or starting up the machinery, equipment, or systems being serviced, the employer is in compliance with the requirements in paragraphs (k)(1)(iii) and (k)(2), provided that the employer ensures that the primary authorized employee takes the following steps in the following order: (1) Before servicing begins and after deenergization, (a) verifies the safe exposure status of each authorized employee, and (b) signs a group tag (or a group tag equivalent) or performs a comparable action; and (2) after servicing is complete and before reenergization, (a) verifies the safe exposure status of each authorized employee, and (b) signs off the group tag (or the group tag equivalent) or performs a comparable action.*

1915.89(m)(1)—The employer shall establish and implement specific *procedures for shift or personnel changes to ensure the continuity of lockout/tags-plus protection*.

1915.89(m)(2)—The employer shall establish and implement provisions for the *orderly transfer of lockout/tags-plus systems* between *authorized employees* when they are starting and ending their workshifts, or when personnel changes occur during a workshift, to prevent energization or startup of the machinery, equipment, or system being serviced or the release of hazardous energy.

1915.89(n)(1)—The employer shall *provide locks and tags-plus system hardware* used for isolating, securing, or blocking machinery, equipment, or systems from all hazardous-energy sources.

1915.89(n)(2)—The employer shall ensure that each lock and tag is *uniquely identified* for the purpose of controlling hazardous energy and is not used for any other purpose.

1915.89(n)(3)—The employer shall ensure that each lock and tag meets specific requirements.

Note to paragraph (n)(3): Reference paragraph (n)(3) for specific requirements.

Programs, Policies and Procedures

1915.89(a)(3)—When other standards in 29 CFR part 1915 [Maritime] and applicable standards in 29 CFR part 1910 [General Industry] require the use of a lock or tag, the employer shall use and supplement them with the procedural and training requirements specified in this section.

1915.89(b)—The employer shall establish and implement a **written** program and procedures for lockout and tags-plus systems to control hazardous energy during the servicing of any machinery, equipment, or system in shipyard employment. The program shall cover:

- **1915.89(b)(1)**—Procedures for lockout/tags-plus systems while servicing machinery, equipment, or systems in accordance with paragraph (c) [General Requirements] of this section;
- **1915.89(b)(2)**—Procedures for protecting employees involved in servicing any machinery, equipment, or system in accordance with paragraphs (d) through (m) [Lockout/Tagout] of this section;
- **1915.89(b)(4)**—Employee information and training in accordance with paragraph (o) [information and Training] of this section;
- **1915.89(b)(5)**—Incident investigations in accordance with paragraph (p) [Incident Investigation] of this section; and
- **1915.89(b)(6)**—Program audits in accordance with paragraph (q) [Program Audits] of this section.

1915.89(c)(2)—If an energy-isolating device is capable of being locked, the employer shall ensure the use of a lock to prevent energization or startup, or the release of hazardous energy, before any servicing is started, unless the employer can demonstrate that the utilization of a tags-plus system will provide full employee protection as set forth in paragraph (c)(6) [Full Employee Protection] of this section.

1915.89(c)(3)—If an energy-isolating device is not capable of being locked, the employer shall ensure the use of a tags-plus system to prevent energization or startup, or the release of hazardous energy, before any servicing is started.

1915.89(c)(4)—Each tags-plus system shall consist of:

- **1915.89(c)(4)(i)**—At least one energy-isolating device with a tag affixed to it

Note to paragraph (c)(4): When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of paragraph (c)(4)(ii)—General Requirements of this section shall not apply, provided that the employer complies with the verification procedures in paragraph (g) [Procedures for Verification of Deenergization and Isolation] of this section.

1915.89(c)(5)—After October 31, 2011, the employer shall ensure that each energy-isolating device for any machinery, equipment, or system is designed to accept a lock whenever the machinery, equipment, or system is extensively repaired, renovated, modified, or replaced, or whenever new machinery, equipment, or systems are installed.

Note to paragraph (c)(5): Reference paragraph (c)(5) for requirements where it does not apply to shipyard employer.

1915.89(c)(6)(i)—When a tag is used on an energy-isolating device that is capable of being locked out, the tag shall be attached at the same location that the lock would have been attached.

1915.89(c)(6)(ii)—The employer shall demonstrate that the use of a tags-plus system will provide a level of safety equivalent to that obtained by using a lock. In demonstrating that an equivalent level of safety is achieved, the employer shall:

- **1915.89(c)(6)(ii)(A)**—Demonstrate full compliance with all tags-plus-related provisions of this standard; and
- **1915.89(c)(6)(ii)(B)**—Implement such additional safety measures as are necessary to provide the equivalent safety available from the use of a lock.

Note to paragraph (c)(6): When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of paragraph (c)(6)(ii)(B) of this section do not apply, provided that the employer complies with the verification procedures in paragraph (g) [Procedures for Verification of Deenergization and Isolation] of this section.

1915.89(c)(7)(i)—The employer shall establish and implement lockout/tags-plus coordination.

Note to paragraph (c)(7)(i): Reference paragraph (c)(7)(i) for specific requirements.

1915.89(c)(7)(ii)—The coordination process shall include a lockout/tags-plus coordinator and a lockout/tags-plus log. Each log shall be specific to each vessel, vessel section, and landside work area.

1915.89(c)(7)(iii)—The employer shall designate a lockout/tags-plus coordinator who is responsible for overseeing and approving lockout and tags-plus system.

Note to paragraph (c)(7)(iii): Reference paragraph (c)(7)(iii) for the specific requirements.

1915.89(c)(7)(iv)—The employer shall ensure that the lockout/tags-plus coordinator maintains and administers a continuous log of each lockout and tags-plus system. The log shall contain specific information.

Note to paragraph (c)(7)(iii): Reference paragraph (c)(7)(iv) for the specific information requirements.

Note to paragraph (c)(7): When the Navy ship's force serves as the lockout/tags-plus coordinator and maintains control of the lockout/tags-plus log, the employer will be in compliance with the requirements in paragraph (c)(7) [Lockout/Tags-Plus Coordination] of this section when coordination between the ship's force and the employer occurs to ensure that applicable lockout/tags-plus procedures are followed and documented.

1915.89(d)(1)—The employer shall establish and implement **written** procedures to prevent energization or startup, or the release of hazardous energy, during the servicing of any machinery, equipment, or system.

Note 1 to paragraph (d)(1): Reference paragraph (d)(1) for the specific procedure requirements.

Note 2 to paragraph (d)(1): The employer need only develop a single procedure for a group of similar machines, equipment, or systems if the machines, equipment, or systems have the same type and magnitude of energy and the same or similar types of controls, and if a single procedure can satisfactorily address the hazards and the steps to be taken to control these hazards.

1915.89(d)(2)—The employer's lockout procedures do not have to be in **writing** for servicing machinery, equipment, or systems, provided that conditions are met.

Note to paragraph (d)(2): Reference paragraph (d)(2) for the specific conditions.

1915.89(e)(1)—Before an authorized employee shuts down any machinery, equipment, or system, the employer shall:

- **1915.89(e)(1)(i)**—Ensure that the authorized employee has knowledge.

Note to paragraph (e)(1): Reference paragraph (e)(1) for the specific requirements.

1915.89(e)(2)—The employer shall ensure that the machinery, equipment, or system is shut down according to the **written** procedures the employer established.

1915.89(e)(4)—The employer shall ensure that the authorized employee relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy that is connected to the machinery, equipment, or system.

Note to paragraph (e): When the Navy ship's force shuts down any machinery, equipment, or system, and relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy that is connected to the machinery, equipment, or system, the employer will be in compliance with the requirements in paragraph (e) [Procedures for Shutdown and Isolation] of this section when the employer's authorized employee verifies that the machinery, equipment, or system being serviced has been properly shut down, isolated, and deenergized.

1915.89(f)(1)—The employer shall ensure that only an authorized employee applies a lockout/tags-plus system.

1915.89(f)(2)—When using lockout systems, the employer shall ensure that the authorized employee affixes each lock in a manner that will hold the energy-isolating device in a safe or off position.

1915.89(f)(3)—When using lockout systems, the employer shall ensure that the authorized employee affixes each lock in a manner that will hold the energy-isolating device in a safe or off position.

1915.89(f)(4)—When the tag cannot be affixed directly to the energy-isolating device the employer shall *ensure that the authorized employee locates it as close as safely possible to the device, in a safe and immediately obvious position.*

1915.89(f)(5)—The employer shall *ensure that each energy-isolating device that controls energy to the machinery, equipment, or system is effective in isolating the machinery, equipment, or system from all potentially hazardous energy source(s).*

Note to paragraph (f): *When the Navy ship's force applies the lockout/tags-plus systems or devices, the employer will be in compliance with the requirements in paragraph (f) [Procedures for Applying Lockout/Tags-Plus Systems] of this section when the employer's authorized employee verifies the application of the lockout/tags-plus systems or devices.*

1915.89(g)(1)—Before servicing machinery, equipment, or a system that has a *lockout/tags-plus system*, the employer shall *ensure that the authorized employee, or the primary authorized employee in a group lockout/tags-plus application, verifies that the machinery, equipment, or system is deenergized and all energy sources isolated.*

1915.89(g)(2)—The employer shall *ensure that the authorized employee, or the primary authorized employee in a group lockout/tags-plus application, continues verifying deenergization and isolation while servicing the machinery, equipment, or system.*

1915.89(g)(3)—Each *authorized employee* in a group *lockout/tags-plus* application who will be servicing the machinery, equipment, or system must be given the *option to verify* that the machinery, equipment, or system is deenergized and all energy sources isolated, even when *verification is performed* by the primary authorized employee.

1915.89(h)—*Procedures for testing.* In each situation in which a lockout/tags-plus system must be removed temporarily and the machinery, equipment, or system restarted to test it or to position a component, the employer shall *ensure that the authorized employee does a specific sequence.*

Note 1 to paragraph (h): *Reference paragraph (h) for the specific sequence.*

Note 2 to paragraph (h): *When the Navy ship's force serves as the lockout/tags-plus coordinator, performs the testing, and maintains control of the lockout/tags-plus systems or devices during testing, the employer is in compliance with paragraph (h) [Procedures for Testing] when the employer's authorized employee acknowledges to the lockout/tags-plus coordinator that the employer's personnel and tools are clear and the machinery, equipment, or system being serviced is ready for testing, and upon completion of the testing, verifies the reapplication of the lockout/tags-plus systems.*

1915.89(i)(1)—Before removing any *lockout/tags-plus* system and restoring the machinery, equipment, or system to use, the employer shall *ensure that the authorized employee does the following:*

- **1915.89(i)(1)(i)**—*Notifies all other authorized and affected employees that the lockout/tags-plus system will be removed;*
- **1915.89(i)(1)(iii)**—*Inspects the work area to ensure that nonessential items have been removed and machinery, equipment, or system components are operationally intact.*

1915.89(i)(2)—The employer shall *ensure that each lock or tags-plus system is removed by the authorized employee who applied it.*

1915.89(i)(3)—When the *authorized employee who applied the lockout/tags-plus system* is not available to remove it, the employer may direct removal by *another authorized employee*, provided the employer *developed and incorporated into the lockout/tags-plus program the specific procedures* and training that address such removal, and demonstrates that the specific procedures used provide a level of employee safety that is at least as effective in protecting employees as removal of the system by the authorized employee who applied it. After meeting these requirements, the employer shall do the following in sequence:

- **1915.89(i)(3)(i)**—*Verify that the authorized employee who applied the lockout/tags-plus system is not in the facility;*
- **1915.89(i)(3)(ii)**—*Make all reasonable efforts to contact the authorized employee to inform him/her that the lockout/tags-plus system has been removed; and*
- **1915.89(i)(3)(iii)**—*Ensure that the authorized employee who applied the lock or tags-plus system has knowledge of the removal before resuming work on the affected machinery, equipment, or system.*

Note to paragraph (i): *When the Navy ship's force serves as lockout/tags-plus coordinator and removes the lockout/tags-plus systems or devices, the employer is in compliance with the requirements in paragraph (i) [Procedures for Removal of Lockout and Tags-Plus Systems] of this section when the employer's authorized employee informs the lockout/tags-plus coordinator that the procedures in paragraph (i)(1) [Procedures for Removal of Lockout and Tags-Plus Systems] of this section have been performed.*

1915.89(j)(1)—*Before an authorized employee turns on any machinery, equipment, or system after servicing is completed, the employer shall ensure that the authorized employee has knowledge of the source, type, and magnitude of the hazards associated with energization or startup, and the means to control these hazards.*

1915.89(j)(2)—*The employer shall execute an orderly startup to prevent or minimize any additional or increased hazard(s) to employees. The employer shall perform tasks before starting up the machinery, equipment, or system.*

Note 1 to paragraph (j)(2): *Reference paragraph (j)(2) for the specific sequence.*

Note 2 to paragraph (j): *When the Navy ship's force serves as lockout/tags-plus coordinator and maintains control of the lockout/tags-plus systems or devices during startup, and the employer is prohibited from starting up the machinery, equipment, or system, the employer is in compliance with the requirements in paragraph (j) [Procedures for Startup] of this section when the employer's authorized employee informs the lockout/tags-plus coordinator the procedures in paragraphs (j)(2)(i) and (j)(2)(ii) [Procedures for Startup] of this section have been performed.*

1915.89(k)—*Procedures for group lockout/tags-plus. When more than one authorized employee services the same machinery, equipment, or system at the same time, the following procedures shall be implemented:*

1915.89(k)(1)—*Primary authorized employee. The employer shall:*

- **1915.89(k)(1)(i)**—*Assign responsibility to one primary authorized employee for each group of authorized employees performing servicing on the same machinery, equipment, or system;*
- **1915.89(k)(1)(ii)**—*Ensure that the primary authorized employee determines the safe exposure status of each authorized employee in the group with regard to the lockout/tags-plus system;*
- **1915.89(k)(1)(iii)**—*Ensure that the primary authorized employee obtains approval from the lockout/tags-plus coordinator to apply and remove the lockout/tags-plus system; and*
- **1915.89(k)(1)(iv)**—*Ensure that the primary authorized employee coordinates the servicing operation with the coordinator when required by paragraph (c)(7)(i) [Lockout/Tags-Plus Coordination] of this section.*

1915.89(k)(2)—*Authorized employees. The employer shall either:*

- **1915.89(k)(2)(i)**—*Have each authorized employee apply a personal lockout/tags-plus system; or*
- **1915.89(k)(2)(ii)**—*Use a procedure that the employer can demonstrate affords each authorized employee a level of protection equivalent to the protection provided by having each authorized employee apply a personal lockout/tags-plus system. Such procedures shall incorporate a means for each authorized employee to have personal control of, and accountability for, his or her protection such as, but not limited to, having each authorized employee;*
 - **1915.89(k)(2)(ii)(A)**—*Sign a group tag (or a group tag equivalent), attach a personal identification device to a group lockout device, or performs a comparable action before servicing is started; and*
 - **1915.89(k)(2)(ii)(B)**—*Sign off the group tag (or the group tag equivalent), remove the personal identification device, or perform a comparable action when servicing is finished.*

Note to paragraph (k)(2): *When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and prohibits the employer from applying or removing the lockout/tags-plus system or starting up the machinery, equipment, or systems being serviced, the employer is in compliance with the requirements in paragraphs (k)(1)(iii) and (k)(2) [Primary Authorized Employee], provided that the employer ensures that the primary authorized employee takes the following steps in the following order: (1) Before servicing begins and after deenergization, (a) verifies the safe exposure status of each authorized employee, and (b) signs a group tag (or a group tag equivalent) or performs a comparable action; and (2) after servicing is complete and before reenergization, (a) verifies the safe exposure status of each authorized employee, and (b) signs off the group tag (or the group tag equivalent) or performs a comparable action.*

1915.89(l)(1)—The host employer shall *establish and implement procedures* to protect employees from hazardous energy in multi-employer worksites. The *procedures shall specify the responsibilities* for host and contract employers.

1915.89(l)(2)—*Host employer responsibilities.* The host employer shall carry out the following responsibilities in multi-employer worksites:

- **1915.89(l)(2)(i)**—*Inform each contract employer* about the content of the *host employer's lockout/tags-plus program and procedures*;
- **1915.89(l)(2)(ii)**—*Instruct each contract employer* to follow the *host employer's lockout/tags-plus program and procedures*; and
- **1915.89(l)(2)(iii)**—*Ensure that the lockout/tags-plus coordinator knows about all servicing operations and communicates with each contract employer who performs servicing or works in an area where servicing is being conducted.*

1915.89(l)(3)—*Contract employer responsibilities.* Each contract employer shall perform the following duties when working in a multi-employer worksite:

- **1915.89(l)(3)(i)**—Follow the *host employer's lockout/tags-plus program and procedures*;
- **1915.89(l)(3)(ii)**—Ensure that the host employer *knows about the lockout/tags-plus hazards* associated with the contract employer's work and what the contract employer is doing to address these hazards; and
- **1915.89(l)(3)(iii)**—*Inform the host employer of any previously unidentified lockout/tags-plus hazards that the contract employer identifies* at the multi-employer worksite.

Note 1 to paragraph (l): *The host employer may include provisions in its contract with the contract employer for the contract employer to have more control over the lockout/tags-plus program if such provisions will provide an equivalent level of protection for the host employer's and contract employer's employees as that provided by paragraph (l) of this section.*

Note 2 to paragraph (l): *When the U.S Navy contracts directly with a contract employer and the Navy ship's force maintains control of the lockout/tags-plus systems or devices, that contract employer shall consider the Navy to be the host employer for the purposes of § 1915.89(l)(3) [Contract Employer Responsibilities].*

1915.89(m)(1)—The employer shall *establish and implement specific procedures* for shift or personnel changes to ensure the continuity of lockout/tags-plus protection.

1915.89(m)(2)—The employer shall *establish and implement provisions* for the *orderly transfer of lockout/tags-plus systems between authorized employees* when they are starting and ending their workshifts, or when personnel changes occur during a workshift, to prevent energization or startup of the machinery, equipment, or system being serviced or the release of hazardous energy.

1915.89(p)(3)—The employer shall ensure that the *incident investigation is conducted by at least one employee* who has the *knowledge of, and experience in, the employer's lockout/tags-plus program and procedures*, and in investigating and *analyzing* incidents involving the release of hazardous energy. The employer may also use additional individuals to participate in *investigating* the incident.

1915.89(p)(7)—If the employer demonstrates that it is infeasible to implement all of the corrective actions *within 30 days*, the employer shall prepare a **written** *abatement plan that contains an explanation of the circumstances causing the delay, a proposed timetable for the abatement, and a summary of the steps the employer is taking in the interim* to protect employees from hazardous energy while servicing machinery, equipment, or systems.

1915.89(q)(1)—The employer shall conduct an *audit of the lockout/tags-plus program and procedures* currently in use *at least annually* to ensure that the *procedures and the requirements* of this section are being followed and to correct any deficiencies.

Inspections and Tests

1915.89(i)(1)—Before removing any *lockout/tags-plus system* and restoring the machinery, equipment, or system to use, the employer shall ensure that *the authorized employee does the following*:

- **1915.89(i)(1)(iii)**—*Inspects the work area* to ensure that nonessential items have been removed and machinery, equipment, or system components are operationally intact.

1915.89(p)(1)—The employer shall *investigate each incident* that resulted in, or could reasonably have resulted in, energization or startup, or the release of hazardous energy, while servicing machinery, equipment, or systems.

1915.89(p)(2)—*Promptly but not later than 24 hours* following the incident, the employer shall *initiate an incident investigation* and *notify each employee* who was, or could reasonably have been, affected by the incident.

1915.89(q)(1)—The employer shall *conduct an audit of the lockout/tags-plus program and procedures* currently in use at least annually to ensure that the procedures and the requirements of this section are being followed and to correct any deficiencies.

1915.89(q)(4)—The employer shall ensure that, *within 15 days after completion of the audit*, the individual(s) who conducted the audit prepare and deliver to the employer a **written audit report** that includes specific information.

Note 1 to paragraph (q)(4): Reference paragraph (q)(4) for the specific information.

Recordkeeping

1915.89(c)(7)(ii)—The coordination process shall *include a lockout/tags-plus coordinator* and a **lockout/tags-plus log**. Each **log** shall be *specific* to each vessel, vessel section, and landside work area.

1915.89(c)(7)(iv)—The employer shall ensure that the *lockout/tags-plus coordinator maintains and administers a continuous log of each lockout and tags-plus system*. The **log** shall *contain specific information*.

Note 1 to paragraph (c)(7)(iv): Reference paragraph (c)(7)(iv) for the specific information.

Note 2 to paragraph (c)(7) of this section: When the Navy ship's force serves as the lockout/tags-plus coordinator and maintains control of the lockout/tags-plus log, the employer will be in compliance with the requirements in paragraph (c)(7) of this section when coordination between the ship's force and the employer occurs to ensure that applicable lockout/tags-plus procedures are followed and documented.

1915.89(o)(7)—Upon *completion of employee training*, the employer shall *keep a record* that the employee *accomplished the training, and that this training is current*. The **training record** shall contain at least the employee's name, date of training, and the subject of the training.

1915.89(p)(4)—The employer shall ensure that the individual(s) conducting the investigation *prepare(s) a written report of the investigation that includes* specific information.

Note 1 to paragraph (p)(4): Reference paragraph (p)(4) for the specific information.

1915.89(p)(5)—The employer shall *review the written incident report* with each employee whose job tasks are relevant to the incident investigation findings, including contract employees when applicable.

1915.89(p)(6)—The employer shall ensure that the incident investigation and **written report** *are completed*, and all corrective actions implemented, within 30 days following the incident.

1915.89(p)(7)—If the employer *demonstrates that it is infeasible to implement all of the corrective actions within 30 days*, the employer shall prepare a **written abatement plan** that contains an explanation of the circumstances causing the delay, a proposed timetable for the abatement, and a summary of the steps the employer is taking in the interim to protect employees from hazardous energy while servicing machinery, equipment, or systems.

1915.89(q)(4)—The employer shall ensure that, *within 15 days after completion of the audit*, the individual(s) who conducted the audit prepare and deliver to the employer a **written audit report** that includes at least:

1915.89(q)(5)—The employer shall promptly *communicate the findings and recommendations* in the **written audit report** to each employee having a job task that may be affected by such findings and recommendations.

1915.89(q)(6)—The employer shall correct the deviations or inadequacies in the *lockout/tags-plus program within 15 days* after receiving the **written audit report**.

1915.89(r)(1)—*Table to paragraph (r)(1) of this section specifies what records the employer must retain and how long the employer must retain them:*

Note to paragraph (r)(1): Table to Paragraph (r)(1)—Retention of Records of this section is required by § 1915.89—Control of Hazardous Energy.

The employer must keep the following records . . .	For at least . . .
(i) Current lockout/tags-plus program and procedures (ii) Training records (iii) Incident investigation reports (iv) Program audit report	Until replaced by updated program and procedures. Until replaced by updated records for each type of training. Until the next program audit is completed. 12 months after being replaced by the next audit report.

1915.89(r)(2)—The employer shall *make all records required by this section available* to employees, their representatives, and the Assistant Secretary in accordance with the procedures and time periods specified in 29 CFR 1910.1020(e)(1) and (e)(3) [Access to Employee Exposure and Medical Records].

Other

1915.89(s)—Appendices. Non-mandatory Appendix A [Typical Minimal Lockout/Tags-Plus Procedures] to this section is a guideline to assist employers and employees in complying with the requirements of this section, and to provide them with other useful information. The information in Appendix A [Typical Minimal Lockout/Tags-Plus Procedures] does not add to, or in any way revise, the requirements of this section.

1915.90—Safety Color Code For Marking Physical Hazards

Scope/Application: The requirements applicable to shipyard employment under this section are identical to the requirements set forth at 29 CFR 1910.144 of this chapter.

1910.144—Safety Color Code For Marking Physical Hazards

STANDARD HIGHLIGHTS

- Signs, Markings and Tags—identification of safety cans, signs, etc.

Signs, Markings and Tags

1910.144(a)(1)—Red. Red shall be the basic color for the identification of:

- **1910.144(a)(1)(ii)**—Danger. Safety cans or other portable containers of flammable liquids having a flash point at or below 80° F, table containers of flammable liquids (open cup tester), excluding shipping containers, shall be painted red with some additional clearly visible identification either in the form of a yellow band around the can or the name of the contents conspicuously stenciled or painted on the can in yellow. Red lights shall be provided at barricades and at temporary obstructions. Danger signs shall be painted red.
- **1910.144(a)(1)(iii)**—Stop. Emergency stop bars on hazardous machines such as rubber mills, wire blocks, flat work ironers, etc., shall be red. Stop buttons or electrical switches which letters or other markings appear, used for emergency stopping of machinery shall be red.

1910.144(a)(3)—Yellow. Yellow shall be the basic color for designating caution and for marking physical hazards such as: Striking against, stumbling, falling, tripping, and “caught in between.”

1915.91—Accident Prevention Signs and Tags

Scope/Application: The requirements applicable to shipyard employment under this section are identical to the requirements set forth at 29 CFR 1910.145 of this chapter.

1910.145—Specifications for Accident Prevention Signs and Tags

Scope/Application: This rule provides specifications for color identification for signs, tags, equipment and containers.

STANDARD HIGHLIGHTS

- Training and Communications—initial instruction, employees informed
- Signs, Markings and Tags—use of signs and tags
- Other—consensus standards

Training and Communications

1910.145(c)(1)(ii)—All employees *shall be instructed* that danger signs indicate immediate danger and that special precautions are necessary.

1910.145(c)(2)(ii)—All employees *shall be instructed* that caution signs indicate a possible hazard against which proper precaution should be taken.

1910.145(c)(3)—*Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.*

1910.145(f)(4)(v)—All employees *shall be informed* as to the meaning of the various tags used throughout the workplace and what special precautions are necessary.

Signs, Markings and Tags

1910.145(c)(1)—*Danger signs.*

- **1910.145(c)(1)(i)**—There shall be *no variation in the type of design of signs posted* to warn of specific dangers and radiation hazards.
- **1910.145(c)(1)(ii)**—All employees *shall be instructed that danger signs indicate immediate danger* and that special precautions are necessary.

1910.145(c)(2)—*Caution signs.*

- **1910.145(c)(2)(ii)**—All employees *shall be instructed that caution signs indicate a possible hazard against which proper precaution should be taken.*

1910.145(c)(3)—*Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.*

1910.145(e)—Sign wordings.

- **1910.145(e)(2)**—Nature of wording. *The wording of any sign should be easily read and concise. The sign should contain sufficient information to be easily understood. The wording should make a positive, rather than negative suggestion and should be accurate in fact.*
- **1910.145(e)(4)**—*Biological hazard signs. The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals, or combinations thereof, which contain, or are contaminated with, viable hazardous agents. For the purpose of this subparagraph the term “biological hazard,” or “biohazard,” shall include only those infectious agents presenting a risk or potential risk to the well-being of man.*

1910.145(f)—*Accident prevention tags.*

- **1910.145(f)(1)(i)**—*This paragraph (f) [Accident Prevention Tags] applies to all accident prevention tags used to identify hazardous conditions and provide a message to employees with respect to hazardous conditions as set forth in paragraph (f)(3) [Use] of this section, or to meet the specific tagging requirements of other OSHA standards.*

1910.145(f)(3)—*Use. Tags shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations which are out of the ordinary, unexpected or not readily apparent. Tags shall be used until such time as the identified hazard is eliminated or the hazardous operation is completed. Tags need not be used where signs, guarding or other positive means of protection are being used.*

1910.145(f)(4)—*General tag criteria. All required tags shall meet the following criteria:*

- **1910.145(f)(4)(i)**—*Tags shall contain a signal word and a major message.*
- **1910.145(f)(4)(i)(A)**—*The signal word shall be either “Danger,” “Caution,” or “Biological Hazard,” “BIOHAZARD,” or the biological hazard symbol.*
- **1910.145(f)(4)(i)(B)**—*The major message shall indicate the specific hazardous condition or the instruction to be communicated to the employee.*

- **1910.145(f)(4)(ii)**—*The signal word shall be readable at a minimum distance of five feet (1.52 m) or such greater distance as warranted by the hazard.*
- **1910.145(f)(4)(iii)**—*The tag’s major message shall be presented in either pictographs, **written** text or both.*
- **1910.145(f)(4)(iv)**—*The signal word and the major message shall be understandable to all employees who may be exposed to the identified hazard.*
- **1910.145(f)(4)(v)**—*All employees shall be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary.*
- **1910.145(f)(4)(vi)**—*Tags shall be affixed as close as safely possible to their respective hazards by a positive means such as string, wire, or adhesive that prevents their loss or unintentional removal.*

1910.145(f)(5)—*Danger tags. Danger tags shall be used in major hazard situations where an immediate hazard presents a threat of death or serious injury to employees. Danger tags shall be used only in these situations.*

1910.145(f)(6)—*Caution tags. Caution tags shall be used in minor hazard situations where a non-immediate or potential hazard or unsafe practice presents a lesser threat of employee injury. Caution tags shall be used only in these situations.*

1910.145(f)(7)—*Warning tags. Warning tags may be used to represent a hazard level between “Caution” and “Danger,” instead of the required “Caution” tag, provided that they have a signal word of “Warning,” an appropriate major message, and otherwise meet the general tag criteria of paragraph (f)(4) [Accident Prevention Tags] of this section.*

1910.145(f)(8)(i)—*Biological hazard tags shall be used to identify the actual or potential presence of a biological hazard and to identify equipment, containers, rooms, experimental animals, or combinations thereof, that contain or are contaminated with hazardous biological agents.*

1910.145(f)(9)—*Other tags. Other tags may be used in addition to those required by this paragraph (f) [Accident Prevention Tags], or in other situations where this paragraph (f) [Accident Prevention Tags] does not require tags, provided that they do not detract from the impact or visibility of the signal word and major message of any required tag.*

Other

1910.145(d)(2)—*Danger signs. The colors red, black, and white shall be those of opaque glossy samples as specified in Table 1 of Fundamental Specification of Safety Colors for CIE Standard Source “C”, American National Standard Z53.1-1967, which is incorporated by reference as specified in Sec. 1910.6.*

1910.145(d)(4)—*Caution signs. Standard color of the background shall be yellow; and the panel, black with yellow letters. Any letters used against the yellow background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of American National Standard Z53.1-1967.*

1910.145(d)(6)—*Safety instruction signs. Standard color of the background shall be white; and the panel, green with white letters. Any letters used against the white background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of American National Standard, Z53.1-1967.*

1910.145(d)(10)—*Slow-moving vehicle emblem. This emblem (see fig. J-7) consists of a fluorescent yellow-orange triangle with a dark red reflective border. The yellow-orange fluorescent triangle is a highly visible color for daylight exposure. The reflective border defines the shape of the fluorescent color in daylight and creates a hollow red triangle in the path of motor vehicle headlights at night. The emblem is intended as a unique identification for, and it shall be used only on, vehicles which by design move slowly (25 m.p.h. or less) on the public roads. The emblem is not a clearance marker for wide machinery nor is it intended to replace required lighting or marking of slow-moving vehicles. Neither the color film pattern and its dimensions nor the backing shall be altered to permit use of advertising or other markings. The material, location, mounting, etc., of the emblem shall be in accordance with the American Society of Agricultural Engineers Emblem for Identifying Slow-Moving Vehicles, ASAE R276, 1967, or ASAE S276.2 (ANSI B114.1-1971), which are incorporated by reference as specified in Sec. 1910.6.*

1915.92—Retention of DOT Markings, Placards and Labels

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Signs, Markings and Tags—material marked, labeled, and placarded
- Other—consensus standards and referenced OSHA standards

Signs, Markings and Tags

1915.92(a)—Any employer who receives a package of hazardous material that is required to be *marked, labeled, or placarded* in accordance with the *U.S. Department of Transportation Hazardous Materials Regulations (49 CFR parts 171 through 180)* shall *retain those markings, labels, and placards on the package* until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.

1915.92(b)—Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the *U.S. Department of Transportation Hazardous Materials Regulations* shall *retain those markings and placards on the freight container, rail freight car, motor vehicle, or transport vehicle* until the hazardous materials are sufficiently removed to prevent any potential hazards.

1915.92(c)—The employer shall *maintain markings, placards, and labels* in a manner that ensures that they are readily visible.

1915.92(d)—For non-bulk packages that will not be reshipped, the requirements of this section are met if a *label or other acceptable marking is affixed in accordance with 29 CFR 1910.1200, Hazard Communication.*

Other

1915.92(a)—Any employer who receives a package of hazardous material that is required to be marked, labeled, or placarded in accordance with the *U.S. Department of Transportation Hazardous Materials Regulations (49 CFR parts 171 through 180)* shall *retain those markings, labels, and placards* on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.

1915.92(b)—Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be *marked or placarded* in accordance with the *U.S. Department of Transportation Hazardous Materials Regulations* shall *retain those markings and placards* on the freight container, rail freight car, motor vehicle, or transport vehicle until the hazardous materials are sufficiently removed to prevent any potential hazards.

1915.92(d)—For non-bulk packages that will not be reshipped, the requirements of this section are met *if a label or other acceptable marking is affixed in accordance with 29 CFR 1910.1200, Hazard Communication.*

1915.93—Motor Vehicle Safety Equipment, Operation and Maintenance

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Training and Communications—operator training
- Programs, Policies and Procedures—implement safe operating measures
- Inspections and Tests—inspection of equipment
- Other—referenced OSHA standards

Training and Communications

1915.93(a)(3)—Only the requirements of *paragraphs (b)(1) through (b)(3) [Designations]* apply to powered industrial trucks, *as defined in § 1910.178 [Powered Industrial Trucks]. The maintenance, inspection, operation, and training requirements in 29 CFR 1910.178 [Powered Industrial Trucks] continue to apply to powered industrial trucks used for shipyard employment.*

Programs, Policies and Procedures

1915.93(b)(1)—The employer shall *ensure that each motor vehicle* acquired or initially used after August 1, 2011 *is equipped* with a safety belt for each employee operating or riding in the motor vehicle. This requirement does not apply to any motor vehicle that was not equipped with safety belts at the time of manufacture.

1915.93(b)(2)—The employer shall *ensure that each employee uses a safety belt*, securely and tightly fastened, at all times while operating or riding in a motor vehicle.

1915.93(b)(4)—The employer shall *ensure that each motor vehicle used to transport an employee has firmly secured seats* for each employee being transported and that all employees being transported are using such seats.

1915.93(c)(2)—The employer shall *ensure that, before a motor vehicle is operated, any tools and materials being transported are secured* if their movements may create a hazard for employees.

1915.93(c)(3)—The employer shall *implement measures to ensure that motor vehicle operators are able to see, and avoid harming, pedestrians and bicyclists at shipyards*.

Note to paragraph (c)(3): *Reference paragraph (c)(3) for measures that employers may implement to comply with this requirement.*

Inspections and Tests

1915.93(a)(3)—Only the requirements of *paragraphs (b)(1) through (b)(3) [Designations]* apply to powered industrial trucks, as defined in § 1910.178 [Powered Industrial Trucks]. *The maintenance, inspection, operation, and training requirements in 29 CFR 1910.178 [Powered Industrial Trucks] continue to apply to powered industrial trucks used for shipyard employment.*

Other

1915.93(a)(3)—Only the requirements of *paragraphs (b)(1) through (b)(3) [Designations]* apply to powered industrial trucks, as defined in § 1910.178 [Powered Industrial Trucks]. *The maintenance, inspection, operation, and training requirements in 29 CFR 1910.178 [Powered Industrial Trucks] continue to apply to powered industrial trucks used for shipyard employment.*

1915.94—Servicing Multi-Piece and Single-Piece Rim Wheels

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to the requirements set forth at 29 CFR 1910.177 of this chapter.*

1910.177—Servicing Multi-Piece and Single-Piece Rim Wheels

Scope/Application: *This section applies to the servicing of multi-piece and single piece rim wheels used on large vehicles such as trucks, tractors, trailers, buses and off-road machines.*

Exception: *This standard does not apply to the servicing of rim wheels used on automobiles, or on pickup trucks and vans utilizing automobile tires or truck tires designated “LT”.*

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures—training program
- Training and Communications—program, evaluate abilities, initial training
- Inspections and Tests*—visual inspections each day, reinspections
- Signs, Markings and Tags—marked and tagged
- Certification*—manufacturer
- Recordkeeping*—record of certification
- Qualified Person—registered professional engineer

Programs, Policies and Procedures

1910.177(c)(1)—The employer shall *provide a program to train* all employees who service rim wheels in the hazards involved in servicing those rim wheels and the safety *procedures* to be followed.

Training and Communications

1910.177(c)(1)—The employer shall *provide a program to train* all employees who service rim wheels in the hazards involved in servicing those rim wheels and the safety *procedures* to be followed.

1910.177(c)(3)—The employer shall *evaluate each employee’s ability* to perform these tasks and to service rim wheels safely, and shall *provide additional training as necessary* to assure that each employee maintains his or her proficiency.

Inspections and Tests

1910.177(c)(3)—The employer *shall evaluate each employee's ability* to perform these tasks and to service rim wheels safely, and *shall provide additional training as necessary* to assure that each employee maintains his or her proficiency.

1910.177(d)(3)(iii)—Restraining devices and barriers *shall be visually inspected prior to each day's use and after any separation* of the rim wheel components or sudden release of contained air.

1910.177(d)(3)(iv)—Restraining devices or barriers removed from service *shall not be returned to service until they are repaired and reinspected*. Restraining devices or barriers requiring structural repair such as component replacement or rewelding *shall not be returned to service until they are certified* by either the manufacturer or a *Registered Professional Engineer* as meeting the strength requirements of *paragraph (d)(3)(i) [Tire Servicing Equipment]* of this section.

1910.177(e)(2)—Multi-piece wheel components and single piece wheels *shall be inspected prior to assembly*. Any wheel or wheel component which is bent out of shape, pitted from corrosion, broken, or cracked shall not be used and shall be *marked or tagged unserviceable* and removed from the service area. Damaged or leaky valves shall be replaced.

1910.177(f)(7)—After tire inflation, the tire and wheel components *shall be inspected while still within the restraining device* to make sure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, the tire shall be deflated by removal of the valve core before the adjustment is made.

Signs, Markings and Tags

1910.177(e)(2)—Multi-piece wheel components and single piece wheels *shall be inspected prior to assembly*. Any wheel or wheel component which is bent out of shape, pitted from corrosion, broken, or cracked shall not be used and *shall be marked or tagged unserviceable* and removed from the service area. Damaged or leaky valves shall be replaced.

Certification

1910.177(d)(3)(iv)—Restraining devices or barriers removed from service *shall not be returned to service until they are repaired and reinspected*. Restraining devices or barriers requiring structural repair such as component replacement or rewelding *shall not be returned to service until they are certified* by either the manufacturer or a *Registered Professional Engineer* as meeting the strength requirements of *paragraph (d)(3)(i) [Tire Servicing Equipment]* of this section.

Recordkeeping

1910.177(d)(3)(iv)—Restraining devices or barriers removed from service shall not be returned to service until they are repaired and *reinspected*. Restraining devices or barriers requiring structural repair such as component replacement or rewelding *shall not be returned to service until they are certified* by either the manufacturer or a *Registered Professional Engineer* as meeting the strength requirements of *paragraph (d)(3)(i) [Tire Servicing Equipment]* of this section.

Qualified Person

1910.177(d)(3)(iv)—Restraining devices or barriers removed from service shall not be returned to service until they are repaired and *reinspected*. Restraining devices or barriers requiring structural repair such as component replacement or rewelding shall not be returned to service *until they are certified* by either the manufacturer or a *Registered Professional Engineer* as meeting the strength requirements of *paragraph (d)(3)(i) [Tire Servicing Equipment]* of this section.

29 CFR 1915 Subpart G—Gear and Equipment for Rigging and Materials Handling

1915.111—Inspection

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—rigging and materials handling

Inspections and Tests

1915.111(a)—All gear and equipment provided by the employer for rigging and materials handling shall be *inspected before each shift and when necessary, at intervals during its use* to ensure that it is safe. Defective gear shall be removed and repaired or replaced before further use.

1915.112—Ropes, Chains and Slings

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—chain slings
- Training and Communications—consulting with chain manufacture
- Qualified Person—repairs to slings
- Signs, Markings and Tags—identification markings

Inspections and Tests

1915.112(c)(2)—All sling chains, including end fastenings, shall be given a *visual inspection* before being used on the job. A *thorough inspection* of all chains in use shall be made every 3 months. Each chain shall bear an indication of the month in which it was *thoroughly inspected*. The *thorough inspection* shall include inspection for wear, defective welds, deformation and increase in length or stretch.

1915.112(c)(3)—Employers must note *interlink wear*, not accompanied by stretch in excess of 5 percent, and remove the chain from service when *maximum allowable wear at any point of link, as indicated in Table G-2 in § 1915.118, has been reached*.

1915.112(c)(4)—Chain slings shall be removed from service when, *due to stretch, the increase in length of a measured section exceeds five (5) percent; when a link is bent, twisted or otherwise damaged; or when raised scarfs or defective welds appear*.

1915.112(c)(5)—All repairs to chains shall be made under qualified supervision. *Links or portions of the chain found to be defective* as described in *paragraph (c)(4) [Chain and Chain Slings]* of this section shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be *proof tested to the proof test load recommended by the manufacturer*.

Training and Communications

1915.112(c)(6)—Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding six months when recommended by the manufacturer. The *chain manufacturer shall be consulted for recommended procedures for annealing or normalizing*. Alloy chains shall never be annealed.

Qualified Person

1915.112(c)(5)—All repairs to chains shall be *made under qualified supervision*. Links or portions of the chain found to be defective as described in *paragraph (c)(4) [Chain and Chain Slings]* of this section shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be *proof tested* to the proof test load recommended by the manufacturer.

Signs, Markings and Tags

1915.112(a)—Employers must ensure that manila rope and manila-rope slings:

- **1915.112(a)(1)**—Have *permanently affixed and legible identification markings* as prescribed by the manufacturer that indicate the recommended safe working load for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one;

- **1915.112(a)(2)**—Not be loaded in excess of its recommended safe working load as prescribed on *the identification markings* by the manufacturer; and
- **1915.112(a)(3)**—Not be used without *affixed and legible identification markings* as required by *paragraph (a)(1)—Manila Rope and Manila-Rope Slings* of this section.

1915.112(b)(1)—Employers must ensure that wire rope and wire-rope slings:

- **1915.112(b)(1)(i)**—Have *permanently affixed and legible identification markings* as prescribed by the manufacturer that indicate the recommended safe working load for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one;
- **1915.112(b)(1)(ii)**—Not be loaded in excess of its recommended safe working load as prescribed on *the identification markings* by the manufacturer; and
- **1915.112(b)(1)(iii)**—Not be used without *affixed and legible identification markings* as required by *paragraph (b)(1)(i)—Wire Rope and Wire-Rope Slings* of this section.

1915.112(c)(1)—Employers must ensure that chain and chain slings:

- **1915.112(c)(1)(i)**—Have *permanently affixed and legible identification markings* as prescribed by the manufacturer that indicate the recommended safe working load for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one;
- **1915.112(c)(1)(ii)**—Not be loaded in excess of its recommended safe working load as prescribed on *the identification markings* by the manufacturer; and
- **1915.112(c)(1)(iii)**—Not be used without *affixed and legible identification markings* as required by *paragraph (c)(1)(i)—Chain and Chain Slings* of this section.
- **1915.112(c)(2)**—All sling chains, including end fastenings, shall be given a *visual inspection* before being used on the job. A thorough *inspection* of all chains in use shall be made every 3 months. Each chain shall *bear an indication of the month in which it was thoroughly inspected*. The thorough *inspection* shall include *inspection* for wear, defective welds, deformation and increase in length or stretch.

1915.113—Shackles and Hooks

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—hooks tested
- Signs, Markings and Tags—identification of hooks
- Recordkeeping*—maintain certification record
- Certification*—certification record of test

Inspections and Tests

1915.113(b)(1)—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 and keep readily available a ***certification record*** which includes the *date of such tests*, the signature of the person *who performed the test* and an identifier for the *hook which was tested*.

1915.113(b)(3)—Hooks shall be *inspected periodically* to see that they have not been bent by overloading. Bent or sprung hooks shall not be used.

Signs, Markings and Tags

1915.113(a)—Employers must ensure that shackles:

- **1915.113(a)(1)**—Have *permanently affixed and legible identification markings* as prescribed by the manufacturer that indicate the recommended safe working load;
- **1915.113(a)(2)**—Not be loaded in excess of its recommended safe working load as prescribed on *the identification markings* by the manufacturer; and

- **1915.113(a)(3)**—Not be used without *affixed and legible identification markings* as required by paragraph (a)(1)(i) of this section.

1915.113(b)(1)—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 and keep readily available a **certification record** which includes the *date of such tests*, the signature of the person *who performed the test* and an identifier for the *hook which was tested*.

Recordkeeping

1915.113(b)(1)—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 and keep readily available a **certification record** which includes the *date of such tests*, the signature of the person *who performed the test* and an identifier for the *hook which was tested*.

Certification

1915.113(b)(1)—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 and keep readily available a **certification record** which includes the *date of such tests*, the signature of the person *who performed the test* and an identifier for the *hook which was tested*.

1915.114—Chain Falls and Pull-Lifts

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—chain falls and pull-lifts inspected
- Signs, Markings and Tags—chain falls and pull-lifts marked

Inspections and Tests

1915.114(b)—Chain falls shall be *regularly inspected* to ensure that they are safe, particular attention being given to the lift chain, pinion, sheaves and hooks for distortion and wear. Pull-lifts shall be *regularly inspected* to ensure that they are safe, particular attention being given to the ratchet, pawl, chain and hooks for distortion and wear.

Signs, Markings and Tags

1915.114(a)—Chain falls and pull-lifts shall be *clearly marked to show the capacity* and the capacity shall not be exceeded.

1915.115—Hoisting And Hauling Equipment

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—derricks and cranes tested
- Signs, Markings and Tags—SWL posted
- Certification*—certification of test
- Qualified Person—persons accredited
- Recordkeeping*—certification

Inspections and Tests

1915.115(a)(1)—Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wing-walls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, *shall be tested and certified* in accordance with the standards provided in *Part 1919 [Gear Certification]* of this title by *persons accredited* for the purpose.

Signs, Markings and Tags

1915.115(c)(1)—The maximum manufacturer’s rated safe working loads for the various working radii of the boom and the maximum and minimum radii at which the boom may be safely used with and without outriggers shall be *conspicuously posted near the controls and shall be visible to the operator*. A radius indicator shall be provided.

1915.115(c)(2)—The *posted safe working loads* of mobile crawler or truck cranes under the conditions of use shall not be exceeded.

Certification

1915.115(a)(1)—Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wing-walls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, *shall be tested and certified* in accordance with the standards provided in *Part 1919 [Gear Certification]* of this title *by persons accredited* for the purpose.

Qualified Person

1915.115(a)(1)—Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wing-walls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, *shall be tested and certified* in accordance with the standards provided in *Part 1919 [Gear Certification]* of this title *by persons accredited* for the purpose.

Recordkeeping

1915.115(a)(1)—Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wing-walls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, *shall be tested and certified* in accordance with the standards provided in *Part 1919 [Gear Certification]* of this title *by persons accredited* for the purpose.

1915.116—Use of Gear

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Training and Communications—signal code
- Qualified Person—individual familiar with signal code

Training and Communications

1915.116(l)—An individual who is familiar with the signal code in use *shall be assigned to act as a signalman* when the hoist operator cannot see the load being handled. *Communications shall be made by means of clear and distinct visual or auditory signals except that verbal signals shall not be permitted.*

1915.116(p)—Before loads or empty lifting gear are raised, lowered, or swung, *clear and sufficient advance warning shall be given* to employees in the vicinity of such operations.

Qualified Person

1915.116(l)—An *individual who is familiar with the signal code* in use shall be assigned to act as a *signalman* when the hoist operator cannot see the load being handled. *Communications shall be made by means of clear and distinct visual or auditory signals except that verbal signals shall not be permitted.*

1915.117—Qualifications of Operators

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Competent Person—gear properly rigged
- Qualified Person—individual familiar with signal code

Competent Person

1915.117(a)—When ship’s gear is used to hoist materials aboard, a *competent person shall determine that the gear is properly rigged*, that it is in safe condition, and that it will not be overloaded by the size and weight of the lift.

Qualified Person

1915.117(b)—Only those *employees who understand the signs, notices, and operating instructions, and are familiar with the signal code in use*, shall be permitted to operate a crane, winch, or other power operated hoisting apparatus.

1915.120—Powered Industrial Truck Operator Training

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at Sec. 1910.178(l) of this chapter.*

1910.178—Powered Industrial Trucks

Note: *This section contains safety requirements relating to fire protection, design, maintenance, and use of fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.*

Exception: *This section does not apply to compressed air or nonflammable compressed gas-operated industrial trucks, nor to farm vehicles, nor to vehicles intended primarily for earth moving or over-the-road hauling.*

STANDARD HIGHLIGHTS

- Training and Communications—training initially and every three years, evaluations
- Certification*—driver certification
- Recordkeeping*—certifications

Training and Communications

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. [Note: Reference paragraph (l)(3)i for training topics.]*

- **1910.178(l)(3)(i)(J)**—*Any vehicle inspection and maintenance that the operator will be required to perform.*

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.*

1910.178(l)(4)(iii)—*An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.*

Certification

1910.178(l)(6)—**Certification.** The employer *shall certify that each operator has been trained and evaluated as required by this paragraph (l) [Operator Training]. The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.*

Recordkeeping

1910.178(l)(6)—**Certification.** The employer *shall certify that each operator has been trained and evaluated as required by this paragraph (l) [Operator Training]. The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.*

29 CFR 1915 Subpart H—Tools and Related Equipment

1915.131—General Precautions

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—air hose examined
- Signs, Markings and Tags—air lines marked

Inspections and Tests

1915.131(h)—*Before use, compressed air hose shall be examined. Visibly damaged and unsafe hose shall not be used.*

Signs, Markings and Tags

1915.131(g)—*Headers, manifolds and widely spaced hose connections on compressed air lines shall bear the word “air” in letters at least 1-inch high, which shall be painted either on the manifolds or separate hose connections, or on signs permanently attached to the manifolds or connections. Grouped air connections may be marked in one location.*

1915.132—Portable Electric Tools

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—checking grounding circuits
- Training and Communications—notifying vessel officer

Inspections and Tests

1915.132(b)—*Grounding circuits, other than by means of the structure of the vessel on which the tool is being used, shall be checked to ensure that the circuit between the ground and the grounded power conductor has resistance which is low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.*

Training and Communications

1915.132(e)—*The employer shall notify the officer in charge of the vessel before using electric power tools operated with the vessel’s current.*

1915.134—Abrasive Wheels

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—abrasive wheels
- Other—consensus standard

Inspections and Tests

1915.134(g)—*All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects.*

Other

1915.134(c)—*Cup type wheels used for external grinding shall be protected by either a revolving cup guard or a band type guard in accordance with the provisions of the United States of America Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7.1-1964. All other portable abrasive wheels used for external grinding shall be provided with safety guards (protection hoods) meeting the requirements of paragraph (e) of this section.*

1915.135—Powder Actuated Fastening Tools

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—tools tested
- Competent Person—employees instructed
- Training and Communications—employees instructed and notifying supervisor

Inspections and Tests

1915.135(b)(1)—Powder actuated fastening tools shall be *tested each day before loading* to ensure that the safety devices are in proper working condition. Any tool found not to be in proper working order shall be immediately removed from service until repairs are made.

1915.135(c)(1)—Before using a tool, the *operator shall inspect* it to determine that it is clean, that all moving parts operate freely and that the barrel is free from obstructions.

Competent Person

1915.135(c)—Before employees are permitted to use powder actuated tools, they shall have been thoroughly *instructed* by a *competent person* with respect to the requirements of *paragraph (b) [General Precautions]* of this section and the safe use of such tools as follows:

Training and Communications

1915.135(c)—Before employees are permitted to use powder actuated tools, they shall have been thoroughly *instructed* by a *competent person* with respect to the requirements of *paragraph (b) [General Precautions]* of this section and the safe use of such tools as follows:

- **1915.135(c)(2)**—When a tool develops a defect during use, the operator shall immediately cease to use it and shall *notify his supervisor*.

1915.136—Internal Combustion Engines, Other Than Ship's Equipment

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—tools tested
- Competent Person—employees instructed

Inspections and Tests

1915.136(b)—All exhaust line joints and *connections shall be checked* for tightness immediately upon starting the engine, and any leaks shall be corrected at once.

1915.136(c)—When internal combustion engines on vehicles, such as forklifts and mobile cranes, or on portable equipment such as fans, generators, and pumps exhaust into the atmosphere below decks, the *competent person shall make tests of the carbon monoxide content of the atmosphere* as frequently as conditions require to ensure that dangerous concentrations do not develop. Employees shall be removed from the compartment involved when the carbon monoxide concentration exceeds 50 parts per million (0.005%). The employer shall use blowers sufficient in size and number and so arranged as to maintain the concentration below this allowable limit before work is resumed.

Competent Person

1915.136(c)—When internal combustion engines on vehicles, such as forklifts and mobile cranes, or on portable equipment such as fans, generators, and pumps exhaust into the atmosphere below decks, the *competent person shall make tests of the carbon monoxide content of the atmosphere* as frequently as conditions require to ensure that dangerous concentrations do not develop. Employees shall be removed from the compartment involved when the carbon monoxide concentration exceeds 50 parts per million (0.005%). The employer shall use blowers sufficient in size and number and so arranged as to maintain the concentration below this allowable limit before work is resumed.

29 CFR 1915 Subpart I—Personal Protective Equipment (PPE)

1915.152—General Requirements

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Exposure Monitoring—hazard assessment
- Training and Communications—use of PPE
- Recordkeeping*—document hazard assessment

Exposure Monitoring

1915.152(b)—*Hazard assessment and equipment.* The employer shall *assess its work activity* to determine whether there are hazards present, or likely to be present, which necessitate the employee's use of PPE. If such hazards are present, or likely to be present, the employer shall:

- **1915.152(b)(1)**—Select the type of PPE that will protect the affected employee from the *hazards identified in the occupational hazard assessment*;
- **1915.152(b)(2)**—*Communicate selection decisions* to affected employees;
- **1915.152(b)(4)**—*Verify that the required occupational hazard assessment has been performed* through a document that contains the following information: occupation, the date(s) of the *hazard assessment*, and the name of the person performing the *hazard assessment*.

Note 1 to paragraph (b): *A hazard assessment conducted according to the trade or occupation of affected employees will be considered to comply with paragraph (b) [Hazard Assessment and Equipment] of this section, if the assessment addresses any PPE-related hazards to which employees are exposed in the course of their work activities.*

Note 2 to paragraph (b): *Non-mandatory Appendix A [Non-Mandatory Guidelines for Hazard Assessment, Personal Protective Equipment (PPE) Selection, and PPE Training Program] to this subpart contains examples of procedures that will comply with the requirement for an occupational hazard assessment.*

Training and Communications

1915.152(b)—*Hazard assessment and equipment.* The employer shall assess its work activity to determine whether there are hazards present, or likely to be present, which necessitate the employee's use of PPE. If such hazards are present, or likely to be present, the employer shall:

- **1915.152(b)(2)**—*Communicate selection decisions* to affected employees;

1915.152(e)(1)—The employer shall *provide training to each employee* who is required, by this section, to use PPE. Exception: *training in the use of personal fall arrest systems and positioning device systems training* is covered in Sections 1915.159 [*Personal Fall Arrest Systems*] and 1915.160 [*Positioning Device Systems*]. Each employee shall be *trained to understand specific information*.

Note to paragraph (e)(1): *Reference paragraph (e)(1) for specific information.*

1915.152(e)(2)—The employer shall ensure that each affected employee *demonstrates the ability to use PPE properly* before being allowed to perform work requiring the use of PPE.

1915.152(e)(3)—The employer shall *retrain any employee* who does not understand or display the skills required by paragraph (e)(2) [*Training*] of this section. Circumstances where *retraining* is required include, but are not limited to, situations where:

- **1915.152(e)(3)(i)**—*Changes in occupation or work render previous training obsolete*; or
- **1915.152(e)(3)(ii)**—*Changes in the types of PPE to be used render previous training obsolete*; or
- **1915.152(e)(3)(iii)**—*Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.*

Recordkeeping

1915.152(b)(4)—Verify that *the required occupational hazard assessment has been performed through a document* that contains the following information: occupation, the date(s) of the hazard assessment, and the name of the person performing the hazard assessment.

Note 1 to paragraph (b): *A hazard assessment conducted according to the trade or occupation of affected employees will be considered to comply with paragraph (b) [Hazard Assessment and Equipment] of this section, if the assessment addresses any PPE-related hazards to which employees are exposed in the course of their work activities.*

Note 2 to paragraph (b): *Non-mandatory Appendix A [Non-Mandatory Guidelines for Hazard Assessment, Personal Protective Equipment (PPE) Selection, and PPE Training Program] to this subpart contains examples of procedures that will comply with the requirement for an occupational hazard assessment.*

1915.153—Eye and Face Protection

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Other—consensus standards

Other

1915.153(b)(1)—Protective eye and face protection devices must *comply with any of the following consensus standards:*

- **1915.153(b)(1)(i)**—ANSI Z87.1-2003, “American National Standard Practice for Occupational and Educational Eye and Face Protection,” which is incorporated by reference in § 1915.5 [Incorporation by Reference];
- **1915.153(b)(1)(ii)**—ANSI Z87.1-1989 (R-1998), “American National Standard Practice for Occupational and Educational Eye and Face Protection,” which is incorporated by reference in § 1915.5 [Incorporation by Reference]; or
- **1915.153(b)(1)(iii)**—ANSI Z87.1-1989, “American National Standard Practice for Occupational and Educational Eye and Face Protection,” which is incorporated by reference in § 1915.5 [Incorporation by Reference].

1915.154—Respiratory Protection

Scope/Application: *Respiratory protection for shipyard employment is covered by 29 CFR 1910.134.*

1910.134—Respiratory 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
- Qualified Person—designated program administrator
- Medical Surveillance*—initial evaluation, recommendations, questionnaires
- Inspections and Tests*—inspections before use and monthly, evaluations
- Certification*—respirator inspections
- Signs, Markings and Tags—tags, labels, color-coding
- Training and Communications—initial and annual training, Appendix D
- Recordkeeping*—retention requirements, records

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.

Note to paragraph (c)(1): 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.

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.

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.

Note to paragraph (e)(5)(i): 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.

Note to paragraph (e)(6)(i): Reference paragraph (e)(6)(i) for specific information.]

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.

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**.*

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.*

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.

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.

Note to paragraph (k)(1): 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.

Recordkeeping

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.

Note to paragraph (m): 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.

1915.155—Head Protection

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Other—consensus standards

Other

1915.155(b)(1)—Head protection must comply with any of the following consensus standards:

- **1915.155(b)(1)(i)**—American National Standards Institute [ANSI] Z89.1-2009, “American National Standard for Industrial Head Protection,” incorporated by reference in Sec. 1915.5;
- **1915.155(b)(1)(ii)**—American National Standards Institute [ANSI] Z89.1-2003, “American National Standard for Industrial Head Protection,” incorporated by reference in Sec. 1915.5; or
- **1915.155(b)(1)(iii)**—American National Standards Institute [ANSI] Z89.1-1997, “American National Standard for Personnel Protection—Protective Headwear for Industrial Workers—Requirements,” incorporated by reference in Sec. 1915.5.

1915.156—Foot Protection

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Other—consensus standards

Other

1915.156(b)(1)—Protective footwear must comply with any of the following consensus standards:

- **1915.156(b)(1)(i)**—ASTM F-2412-2005, “Standard Test Methods for Foot Protection,” and ASTM F-2413-2005, “Standard Specification for Performance Requirements for Protective Footwear,” which are incorporated by reference in § 1915.5;

- **1915.156(b)(1)(ii)**—ANSI Z41-1999, “American National Standard for Personal Protection—Protective Footwear,” which is incorporated by reference in § 1915.5; or
- **1915.156(b)(1)(iii)**—ANSI Z41-1991, “American National Standard for Personal Protection—Protective Footwear,” which is incorporated by reference in § 1915.5.

1915.158—Lifesaving Equipment

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Other—USCG approved equipment
- Inspections and Tests—personal flotation devices
- Signs, Markings and Tags—PFDs marked

Other

1915.158(a)(1)—PFDs (life preservers, life jackets, or work vests) worn by each affected employee must be *United States Coast Guard (USCG) approved pursuant to 46 CFR part 160 (Type I, II, III, or V PFD)* and marked for use as a work vest, for commercial use, or for use on vessels. *USCG approval* is pursuant to 46 CFR part 160, Coast Guard Lifesaving Equipment Specifications.

1915.158(b)(1)—When work is being performed on a floating vessel 200 feet (61 m) or more in length, at least three 30-inch (0.76 m) *U.S. Coast Guard approved* ring life buoys with lines attached shall be located in readily visible and accessible places. Ring life buoys shall be located one forward, one aft, and one at the access to the gangway.

1915.158(b)(2)—On floating vessels under 200 feet (61 m) in length, at least one 30-inch (0.76 m) *U.S. Coast Guard approved* ring life buoy with line attached shall be located at the gangway.

1915.158(b)(3)—At least one 30-inch (0.76 m) *U. S. Coast Guard approved* ring life buoy with a line attached shall be located on each staging alongside of a floating vessel on which work is being performed.

Inspections and Tests

1915.158(a)(2)—Prior to each use, personal flotation devices shall be inspected for dry rot, chemical damage, or other defects which may affect their strength and buoyancy. Defective personal flotation devices shall not be used.

Signs, Markings and Tags

1915.158(a)(1)—PFDs (life preservers, life jackets, or work vests) worn by each affected employee must be *United States Coast Guard (USCG) approved pursuant to 46 CFR part 160 (Type I, II, III, or V PFD) and marked for use as a work vest, for commercial use, or for use on vessels.* USCG approval is pursuant to 46 CFR part 160, Coast Guard Lifesaving Equipment Specifications.

1915.159—Personal Fall Arrest Systems (PFAS)

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—testing PFAS equipment
- Qualified Person—horizontal lifelines
- Training and Communications—personal fall arrest systems

Inspections and Tests

1915.159(a)(4)—D-rings and snaphooks shall be *proof-tested to a minimum tensile load of 3,600 pounds (16 Kn)* without cracking, breaking, or being permanently deformed.

1915.159(c)(5)—Personal fall arrest systems *shall be inspected prior to each use* for mildew, wear, damage, and other deterioration. Defective components shall be removed from service.

1915.159(c)(6)—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 qualified person* to be undamaged and suitable for reuse.

1915.159(d)—Before using personal fall arrest equipment, each affected employee *shall be trained to understand* the application limits of the equipment and proper hook-up, anchoring, and tie-off techniques. *Affected employees shall also be trained* so that they can demonstrate the proper use, inspection, and storage of their equipment.

Qualified Person

1915.159(a)(9)—Anchorages shall be *capable of supporting at least 5,000 pounds (22.24 Kn)* per employee attached, or shall be designed, installed, and used as follows:

- **1915.159(a)(9)(i)**—As part of a complete personal fall arrest system which maintains a safety factor of at least two; and
- **1915.159(a)(9)(ii)**—Under the direction and *supervision of a qualified person*.

1915.159(b)(5)—Horizontal lifelines shall be designed, installed, and used under the *supervision of a qualified person*, and shall only be used as part of a complete personal fall arrest system that maintains a safety factor of at least two.

1915.159(c)(6)—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 qualified person* to be undamaged and suitable for reuse.

Training and Communications

1915.159(d)—Before using personal fall arrest equipment, *each affected employee shall be trained* to understand the application limits of the equipment and proper hook-up, anchoring, and tie-off techniques. Affected employees shall also be *trained so that they can demonstrate the proper use, inspection, and storage of their equipment*.

1915.160—Positioning Device Systems

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—drop test, inspections
- Qualified Person—inspections
- Training and Communications—application limits, etc.

Inspections and Tests

1915.160(b)(2)—The following system performance criteria for positioning device systems are effective November 20, 1996:

- **1915.160(b)(2)(i)**—A window cleaner’s positioning system shall be capable of withstanding without failure a *drop test consisting of a 6 foot (1.83 m) drop of a 250-pound (113.4 kg) weight*. The system shall *limit the initial arresting force to not more than 2,000 pounds (8.9 Kn)*, with a duration not to exceed 2 milliseconds. The system shall *limit any subsequent arresting forces imposed on the falling employee to not more than 1,000 pounds (4.45 Kn)*;
- **1915.160(b)(2)(ii)**—All other positioning device systems shall be capable of withstanding without failure a *drop test consisting of a 4 foot (1.22 m) drop of a 250-pound (113.4 kg) weight*.

Note to paragraph (b)(2): *Positioning device systems which comply with the provisions of Section 2 of Non-mandatory Appendix B to this subpart shall be deemed to meet the requirements of this paragraph (b)(2).*

1915.160(c)(1)—Positioning device systems shall be *inspected before each use* for mildew, wear, damage, and other deterioration. Defective components shall be removed from service.

1915.160(c)(2)—A positioning device system or component subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection, unless *inspected and determined by a qualified person* to be undamaged and suitable for reuse.

1915.160(d)—Before using a positioning device system, employees *shall be trained* in the application limits, proper hook-up, anchoring and tie-off techniques, methods of use, *inspection*, and storage of positioning device systems.

Qualified Person

1915.160(c)(2)—A positioning device system or component subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection, unless *inspected and determined by a qualified person* to be undamaged and suitable for reuse.

Training and Communications

1915.160(d)—*Training.* Before using a positioning device system, *employees shall be trained* in the application limits, proper hook-up, anchoring and tie-off techniques, methods of use, inspection, and storage of positioning device systems.

29 CFR 1915 Subpart J—Ship’s Machinery and Piping Systems

1915.162—Ship’s Boilers

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—visual observation
- Signs, Markings and Tags—tagging valves

Inspections and Tests

1915.162(a)(2)—Drain connections to atmosphere on all of the dead interconnecting systems shall be opened for *visual observation* of drainage.

Signs, Markings and Tags

1915.162(a)(1)—The isolation and shutoff valves connecting the dead boiler with the live system or systems shall be secured, blanked, and then locked or *tagged, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*, indicating that employees are working on the boiler. This lock or tag shall not be removed nor the valves unblanked until it is determined that this may be done without creating a hazard to the employees working on the boiler, or until the work on the boiler is completed, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]. When valves are welded instead of bolted, at least two isolation and shutoff valves connecting the dead boiler with the live system or systems shall be secured, and then locked or *tagged, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*.

1915.162(a)(3)—A *warning sign* calling attention to the fact that employees are working in the boilers shall be hung in a conspicuous location in the engine room. This *sign shall not be removed* until it is determined that the work is completed and all employees are out of the boilers.

1915.163—Ship’s Piping Systems

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—visual observation
- Signs, Markings and Tags—tagging valves

Inspections and Tests

1915.163(a)(2)—Drain connections to the atmosphere on all of the dead interconnecting systems shall be opened for *visual observation* of drainage.

Signs, Markings and Tags

1915.163(a)(1)—The isolation and shutoff valves connecting the dead system with the live system or systems shall be secured, blanked, and then locked or *tagged, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*, indicating that employees are working on the systems. The lock or tag shall not be removed or the valves unblanked until it is determined that this may be done without creating a hazard to the employees working on the system, or until the work on the system is completed, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]. When valves are welded instead of bolted, at least two isolation and shutoff valves connecting the dead system with the live system or systems shall be secured, and then locked or *tagged, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*.

1915.164—Ship's Propulsion Machinery

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—visual checks
- Signs, Markings and Tags—signs and tagging equipment

Inspections and Tests

1915.164(b)(1)—A *check shall be made* to ensure that all employees, equipment, and tools are clear of the engine, reduction gear, and its connecting accessories.

1915.164(b)(2)—A *check shall be made* to ensure that all employees, equipment and tools are free of the propeller.

1915.164(d)—Before the main engine is turned over (e.g., when warming up before departure or testing after an overhaul) a *check shall be made* to ensure that all employees, equipment, and tools are free of the propeller.

Signs, Markings and Tags

1915.164(a)(1)—The jacking gear shall be engaged to prevent the main engine from turning over. A *sign shall be posted* at the throttle indicating that the jacking gear is engaged. This *sign shall not be removed* until the jacking gear can be safely disengaged.

1915.164(a)(2)—If the jacking gear is steam driven, the employer shall ensure that the stop valves to the jacking gear are secured, and then locked or *tagged, in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*.

1915.164(a)(3)—If the jacking gear is electrically driven, the circuit controlling the jacking gear shall be de-energized by tripping the circuit breaker, opening the switch, or removing the fuse, whichever is appropriate, and then locked or *tagged in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*.

1915.164(c)—Before work is started on or in the immediate vicinity of the propeller, a *warning sign* calling attention to the fact that employees are working in that area shall be *hung in a conspicuous location* in the engine room. This *sign shall not be removed* until it is determined that the work is completed and all employees are free of the propeller.

29 CFR 1915 Subpart K—Portable, Unfired Pressure Vessels, Drums and Containers, Other Than Ship's Equipment

1915.172—Portable Air Receivers and Other Unfired Pressure Vessels

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—examinations and tests
- Signs, Markings and Tags—marked and reported
- Competent Person—unfired pressure vessels examined
- Certification*—record of examinations and tests
- Other—ASME code
- Recordkeeping*—certification

Inspections and Tests

1915.172(a)—Portable, unfired pressure vessels, built after the effective date of this regulation, shall be marked and reported indicating that they have been designed and constructed to meet the standards of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Rules for Construction of Unfired Pressure Vessels, 1963. They shall be subjected to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

1915.172(b)—Portable, unfired pressure vessels, not built to the code requirements of paragraph (a) of this section, and built prior to the effective date of this regulation, shall be examined quarterly by a competent person. They shall be subjected yearly to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

1915.172(d)—A **certification record** of such examinations and tests made in compliance with the requirements of paragraphs (a) and (b) of this section shall be maintained. The **certification record** shall include the date of examinations and tests, the signature of the person who performed the examinations or tests and the serial number, or other identifier, of the equipment examined and tested.

Signs, Markings and Tags

1915.172(a)—Portable, unfired pressure vessels, built after the effective date of this regulation, shall be marked and reported indicating that they have been designed and constructed to meet the standards of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Rules for Construction of Unfired Pressure Vessels, 1963. They shall be subjected to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

Competent Person

1915.172(b)—Portable, unfired pressure vessels, not built to the code requirements of paragraph (a) of this section, and built prior to the effective date of this regulation, shall be examined quarterly by a competent person. They shall be subjected yearly to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

Certification

1915.172(d)—A **certification record** of such examinations and tests made in compliance with the requirements of paragraphs (a) and (b) of this section shall be maintained. The **certification record** shall include the date of examinations and tests, the signature of the person who performed the examinations or tests and the serial number, or other identifier, of the equipment examined and tested.

Other

1915.172(a)—Portable, unfired pressure vessels, built after the effective date of this regulation, *shall be marked and reported* indicating that they have been *designed and constructed to meet the standards of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Rules for Construction of Unfired Pressure Vessels, 1963*. They shall be subjected to a hydrostatic *pressure test of one and one-half times the working pressure of the vessels*.

Recordkeeping

1915.172(d)—A ***certification record*** of such examinations and tests made in compliance with the requirements of paragraphs (a) and (b) of this section shall be maintained. The ***certification record*** shall include the date of examinations and tests, the signature of the person *who performed the examinations or tests* and the serial number, or other identifier, of the equipment examined and tested.

29 CFR 1915 Subpart L—Electrical Machinery

1915.181—Electrical Circuits and Distribution Boards

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—examinations and tests
- Signs, Markings and Tags—equipment tagged

Inspections and Tests

1915.181(b)—Before an employee is permitted to work on an electrical circuit, except when the circuit must remain energized for *testing* and adjusting, the circuit shall be deenergized and *checked at the point at which the work is to be done to insure that it is actually deenergized*. When *testing* or adjusting an energized circuit a rubber mat, duck board, or other suitable insulation shall be used underfoot where an insulated deck does not exist.

Signs, Markings and Tags

1915.181(c)—De-energizing the circuit shall be accomplished by opening the circuit breaker, opening the switch, or removing the fuse, whichever method is appropriate. The circuit breaker, switch, or fuse location shall then be *locked out or tagged in accordance with § 1915.89 [Control of Hazardous Energy (Lockout/Tags-Plus)]*.

29 CFR 1915 Subpart P—Fire Protection in Shipyard Employment

1915.501—General Provisions

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications—fire watch, fire fighting
- Programs, Policies and Procedures—written fire safety plan

Training and Communications

1915.501(d)(1)(i)—*Inform all employers at the worksite about the content of the fire safety plan including hazards, controls, fire safety and health rules, and emergency procedures.*

1915.501(d)(1)(ii)—*Make sure the safety and health responsibilities for fire protection are assigned as appropriate to other employers at the worksite.*

1915.501(d)(1)(iii)—*If there is more than one host employer, each host employer must communicate relevant information about fire-related hazards to other host employers. When a vessel owner or operator (temporarily) becomes a host shipyard employer by directing the work of ships' crews on repair or modification of the vessel or by hiring other contractors directly, the vessel owner or operator must also comply with these provisions for host employers.*

1915.501(d)(2)(i)—*Make sure that the host employer knows about the fire-related hazards associated with the contract employer's work and what the contract employer is doing to address them.*

1915.501(d)(2)(ii)—*Advise the host employer of any previously unidentified fire-related hazards that the contract employer identifies at the worksite.*

Programs, Policies and Procedures

1915.501(c)—*The employer must provide ways for employees or employee representatives, or both to participate in developing and periodically reviewing programs and policies adopted to comply with this subpart.*

1915.502—Fire Safety Plan

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications*—fire watch, fire fighting, document
- Programs, Policies and Procedures*—written fire safety plan
- Recordkeeping*—written plan

Training and Communications

1915.502(b)(4)—*Procedures for notifying employees of a fire emergency.*

1915.502(b)(5)—*Procedures for notifying fire response organizations of a fire emergency.*

1915.502(c)—*The employer must review the plan with each employee at the following times:*

- **1915.502(c)(1)**—*Within 90 days of December 14, 2004, for employees who are currently working;*
- **1915.502(c)(2)**—*Upon initial assignment for new employees; and*
- **1915.502(c)(3)**—*When the actions the employee must take under the plan change because of a change in duties or a change in the plan.*

1915.502(d)(3)—*Document that affected employees have been informed about the plan as required by paragraph (c) of this section.*

1915.502(d)(4)—*Ensure any outside fire response organization that the employer expects to respond to fires at the employer's worksite has been given a copy of the current plan.*

Programs, Policies and Procedures

1915.502(a)—The employer must *develop and implement a written fire safety plan* that covers all the actions that employers and employees must take to ensure employee safety in the event of a fire. (See Appendix A to this subpart for a Model Fire Safety Plan.)

1915.502(b)(4)—*Procedures for notifying* employees of a fire emergency.

1915.502(b)(5)—*Procedures for notifying* fire response organizations of a fire emergency.

1915.502(c)—The employer must *review the plan with each employee* at the following times:

- **1915.502(c)(1)**—*Within 90 days* of December 14, 2004, for employees who are currently working;
- **1915.502(c)(2)**—*Upon initial assignment* for new employees; and
- **1915.502(c)(3)**—When the actions the employee must take under the *plan* change *because of a change* in duties or a change in the plan.

1915.502(d)—The employer also must:

- **1915.502(d)(1)**—Keep the *plan accessible* to employees, employee representatives, and OSHA;
- **1915.502(d)(2)**—*Review and update the plan* whenever necessary, but at least annually;
- **1915.502(d)(3)**—*Document that affected employees have been informed about the plan* as required by paragraph (c)—*Reviewing the Plan with Employees* of this section; and
- **1915.502(d)(4)**—Ensure any outside fire response organization that the employer expects to respond to fires at the employer's worksite has been *given a copy of the current plan*.

1915.502(e)—*Contract employers* in shipyard employment must have a *fire safety plan* for their employees, and this plan must comply with the host employer's *fire safety plan*.

1915.503—Precautions for Hot Work

Scope/Application: *This section applies to shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—competent person log
- Signs, Markings and Tags—line identification
- Competent Person*—competent person log, certificate
- Qualified Person*—marine chemist's certificate
- Certification*—marine chemist's certificate
- Recordkeeping*—certificate

Inspections and Tests

1915.503(a)(2)(i)—Before authorizing hot work in a non-designated area, the employer must *visually inspect the area* where hot work is to be performed, including adjacent spaces, to ensure the area is free of fire hazards, unless a *Marine Chemist's certificate* or *Shipyard Competent Person's log* is used for authorization.

1915.503(b)(2)(iv)—All disconnected fuel gas and oxygen hose lines are rolled back to the supply manifold or to open air to disconnect the torch; or extended fuel gas and oxygen hose lines are not reconnected at the supply manifold unless the *lines are given a positive means of identification* when they were first connected and the *lines are tested using a drop test* or other positive means to ensure the integrity of fuel gas and oxygen burning system.

Signs, Markings and Tags

1915.503(b)(2)(iv)—All disconnected fuel gas and oxygen hose lines are rolled back to the supply manifold or to open air to disconnect the torch; or extended fuel gas and oxygen hose lines are not reconnected at the supply manifold unless the *lines are given a positive means of identification* when they were first connected and the *lines are tested using a drop test* or other positive means to ensure the integrity of fuel gas and oxygen burning system.

Competent Person

1915.503(a)(2)(i)—Before authorizing hot work in a non-designated area, the employer must *visually inspect* the area where hot work is to be performed, including adjacent spaces, to ensure the area is free of fire hazards, unless a Marine Chemist’s *certificate* or *Shipyards Competent Person’s log* is used for authorization.

Qualified Person

1915.503(a)(2)(i)—Before authorizing hot work in a non-designated area, the employer must *visually inspect* the area where hot work is to be performed, including adjacent spaces, to ensure the area is free of fire hazards, unless a *Marine Chemist’s certificate* or *Shipyards Competent Person’s log* is used for authorization.

Recordkeeping

1915.503(a)(2)(i)—Before authorizing hot work in a non-designated area, the employer must *visually inspect the area* where hot work is to be performed, including adjacent spaces, to ensure the area is free of fire hazards, unless a *Marine Chemist’s certificate* or *Shipyards Competent Person’s log* is used for authorization.

1915.504—Fire Watches

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—competent person log
- Training and Communications—fire watch training
- Programs, Policies and Procedures*—written policy
- Competent Person—shipyards competent person
- Qualified Person—marine chemist, coast guard authorized person
- Signs, Markings and Tags*—fire watch posted
- Recordkeeping*—posted fire watch, written policy

Inspections and Tests

1915.504(c)(2)(iv)—Remain in the hot work area for at least 30 minutes after completion of the hot work, unless the employer or its representative *surveys the exposed area* and makes a determination that there is no further fire hazard;

Training and Communications

1915.504(a)—The employer must create and keep *current a written policy* that specifies the following requirements for employees performing fire watch in the workplace:

- **1915.504(a)(1)**—The *training employees must be given (§ 1915.508(c) [Training])* contains *detailed fire watch training requirements*).

1915.504(c)(2)—Employers must ensure that employees assigned to fire watch duty:

- **1915.504(c)(2)(ii)**—Are able to *communicate with workers* exposed to hot work;
- **1915.504(c)(2)(v)**—Are *trained to detect fires* that occur in areas exposed to the hot work;
- **1915.504(c)(2)(vi)**—Attempt to extinguish any incipient stage fires in the hot work area that are within the capability of available equipment and *within the fire watch’s training qualifications*, as defined in § 1915.508 [Training];
- **1915.504(c)(2)(vii)**—*Alert employees of any fire* beyond the incipient stage; and
- **1915.504(c)(2)(viii)**—If unable to extinguish fire in the areas exposed to the hot work, *activate the alarm*.

Programs, Policies and Procedures

1915.504(a)—The employer must *create and keep current a written policy* that specifies requirements for employees performing fire watch in the workplace.

Note to paragraph (a): Reference paragraph (a) for specific requirements for the policy.

Competent Person

1915.504(b)—The employer *must post a fire watch if during hot work*.

- **1915.504(b)(8)**—A Marine Chemist, a Coast Guard-authorized person, or a shipyard Competent Person, as defined in 29 CFR Part 1915, Subpart B, requires that a fire watch be posted.

Note to paragraph (b): Reference paragraph (b) for specific requirements.

Qualified Person

1915.504(b)—The employer *must post a fire watch if during hot work*.

- **1915.504(b)(8)**—A Marine Chemist, a Coast Guard-authorized person, or a shipyard Competent Person, as defined in 29 CFR Part 1915, Subpart B, requires that a fire watch be posted.

Note to paragraph (b): Reference paragraph (b) for specific requirements.

Signs, Markings and Tags

1915.504(b)—The employer *must post a fire watch if during hot work*.

- **1915.504(b)(8)**—A Marine Chemist, a Coast Guard-authorized person, or a shipyard Competent Person, as defined in 29 CFR Part 1915, Subpart B, requires that a fire watch be posted.

Note to paragraph (b): Reference paragraph (b) for specific requirements.

Recordkeeping

1915.504(a)—The employer must create and keep *current a written policy* that specifies the following requirements for employees performing fire watch in the workplace.

1915.504(b)—The employer *must post a fire watch if during hot work*.

1915.505—Fire Response

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections
- Training and Communications—information provided
- Programs, Policies and Procedures*—written policy
- Medical Surveillance—shipyard competent person
- Qualified Person—marine chemist, coast guard authorized person
- Recordkeeping*—medical records

Inspections and Tests

1915.505(f)(1)—The employer must *inspect* and maintain personal protective equipment used to protect fire response employees to ensure that it provides the intended protection.

Training and Communications

1915.505(d)(4)—Provide the information required in this paragraph (d)—*Organization of Internal Fire Response Functions* to the outside fire response organization to be used.

Programs, Policies and Procedures

1915.505(a)—The employer must:

- **1915.505(a)(2)**—Create, maintain, and update a *written policy*.

Note to paragraph (a)(2) and (b): Reference paragraph (a)(2) and (b) for specific requirements for the policy.

1915.505(b)(1)—If an internal fire response is to be used, the employer must include specific information *in the employer's written policy*.

Note to paragraph (b)(1): Reference paragraph (b)(1) for specific requirements for the policy.

1915.505(b)(2)—If an outside fire response organization is used, the employer must include specific information in *the written policy*.

Note to paragraph (b)(2): Reference paragraph (b)(2) for specific requirements for the policy.

1915.505(b)(3)—*A combination of internal and outside fire response.* If a combination of internal and outside fire response is to be used, the employer must include the additional information, in addition to the requirements in paragraphs (b)(1) and (2) [Required Written Policy Information] of this section, in *the written policy*.

Note to paragraph (b)(3): Reference paragraph (b)(3) for specific requirements for the policy.

Medical Surveillance

1915.505(c)(1)—*All fire response employees receive medical examinations* to assure that they are physically and medically fit for the duties they are expected to perform.

1915.505(c)(2)—Fire response employees, who are required to wear respirators in performing their duties, *meet the medical requirements of § 1915.154 [Respiratory Protection]*.

1915.505(c)(3)—Each fire response employee has an *annual medical examination*.

1915.505(c)(4)—The *medical records* of fire response employees are kept in accordance with § 1915.1020 [Access to Employee Exposure and Medical Records].

Qualified Person

1915.505(e)(3)—*Respiratory protection.* The employer must:

- **1915.505(e)(3)(iii)**—Provide *fire response employees* who perform or support emergency operations that will expose them to hazardous chemicals in liquid form either:
 - **1915.505(e)(3)(iii)(B)**—*Respiratory protective devices certified* by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR Part 84 as suitable for the specific chemical environment;
 - **1915.505(e)(3)(iv)**—Ensure that additional outside air supplies used in conjunction with SCBA result in positive pressure systems that are *certified* by NIOSH under 42 CFR Part 84;
 - **1915.505(e)(3)(v)**—Provide only SCBA that meet the requirements of *NFPA 1981-2002 Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services* [incorporated by reference, see § 1915.5].

1915.505(e)(4)—Interior structural firefighting operations. The employer must:

- **1915.505(e)(4)(ii)**—Ensure that this equipment meets the applicable recommendations in *NFPA 1971-2000 Standard on Protective Ensemble for Structural Fire Fighting* [incorporated by reference, see § 1915.5].

1915.505(e)(5)—The employer must provide, at no cost, to all fire response employees who are exposed to the hazards of proximity firefighting, appropriate protective proximity clothing meets the applicable recommendations in *NFPA 1976-2000 Standard on Protective Ensemble for Proximity Fire Fighting* [incorporated by reference, see § 1915.5].

1915.505(e)(6)—Personal Alert Safety System (PASS) devices. The employer must:

- **1915.505(e)(6)(ii)**—Ensure that each PASS device meets the recommendations in *NFPA 1982-1998 Standard on Personal Alert Safety Systems (PASS)*, [incorporated by reference, see § 1915.5].

1915.505(e)(7)—Life safety ropes, body harnesses, and hardware. The employer must ensure that:

- **1915.505(e)(7)(i)**—All life safety ropes, body harnesses, and hardware used by fire response employees for emergency operations meet the applicable recommendations in *NFPA 1983-2001, Standard on Fire Service Life Safety Rope and System Components* [incorporated by reference, see § 1915.5].

Recordkeeping

1915.505(a)—The employer must:

- **1915.505(a)(2)**—*Create, maintain, and update a written policy.*

1915.505(c)(4)—The *medical records* of fire response employees are kept in accordance with § 1915.1020 [*Access to Employee Exposure and Medical Records*].

1915.506—Hazards of Fixed Extinguishing Systems on Board Vessels and Vessel Sections

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—retest, testing
- Training and Communications—training
- Qualified Person—authorized employees

Inspections and Tests

1915.506(e)(1)—When testing a fixed extinguishing system involves a total discharge of extinguishing medium into a space, the employer *must evacuate all employees from the space* and assure that no employees remain in the space during the discharge. The employer must *retest the atmosphere* in accordance with § 1915.12 [*Precautions and the Order of Testing Before Entering Confined Spaces and Other Dangerous Atmospheres*] to ensure that the oxygen levels are safe for employees to enter.

1915.506(e)(2)—When testing a fixed extinguishing system does not involve a total discharge of the systems extinguishing medium, the employer must make sure that the system’s extinguishing medium is physically isolated and that all *employees not directly involved in the testing are evacuated* from the protected space.

Training and Communications

1915.506(b)(2)—Ensure *employees are trained* to recognize specific information.

Note to paragraph (b)(2): Reference paragraph (b)(2) for specific training information.

Qualified Person

1915.506(g)—If fixed manual extinguishing systems are used to provide fire protection for spaces in which the employees are working, the employer must ensure that:

- **1915.506(g)(1)**—Only *authorized employees* are allowed to activate the system;
- **1915.506(g)(2)**—*Authorized employees* are trained to operate and activate the systems;

1915.507—Land-Side Fire Protection Systems

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Inspections and Tests—inspections, tests
- Signs, Markings and Tags—posting signs
- Training and Communications—notify employees
- Qualified Person—qualified technician or mechanic
- Other—NFPA requirements

Inspections and Tests

1915.507(b)(1)—The employer must select, install, *inspect, maintain, and test* all portable fire extinguishers according to *NFPA 10-2002 Standard for Portable Fire Extinguishers [incorporated by reference, see § 1915.5]*.

1915.507(c)(6)—Select, install, *inspect, maintain, and test* all automatic fire detection systems and emergency alarms according to *NFPA 72-2002 National Fire Alarm Code [incorporated by reference, see § 1915.5]*.

1915.507(d)—The employer must select, install, maintain, *inspect, and test* all fixed systems required by OSHA.

Note to paragraph (d): Reference paragraph (d) for specific information.

Signs, Markings and Tags

1915.507(c)(5)—*Post hazard warning or caution signs* at both the entrance to and inside of areas protected by fixed extinguishing systems that use extinguishing agents in concentrations known to be hazardous to employee safety or health.

Training and Communications

1915.507(c)(2)—*Notify employees* and take the necessary precautions to ensure employees are safe from fire if for any reason a fire extinguishing system stops working, until the system is working again.

Qualified Person

1915.507(c)(3)—Ensure all repairs to fire extinguishing systems and equipment are done by a *qualified technician or mechanic*;

Other

1915.507(b)(1)—The employer must select, install, *inspect, maintain, and test* all portable fire extinguishers according to *NFPA 10-2002 Standard for Portable Fire Extinguishers [incorporated by reference, see § 1915.5]*.

1915.507(b)(2)—The employer is permitted to use Class II or Class III hose systems, in accordance with *NFPA 10-2002 (incorporated by reference, see § 1915.5)*, as portable fire extinguishers if the employer selects, installs, inspects, maintains, and tests those systems according to the specific recommendations in *NFPA 14-2003 Standard for the Installation of Standpipe and Hose Systems [incorporated by reference, see § 1915.5]*.

1915.507(c)(1)—Ensure that any fixed extinguishing system component or extinguishing agent is *approved* by an *OSHA Nationally Recognized Testing Laboratory, meeting the requirements of 29 CFR 1910.7*, for use on the specific hazards the employer expects it to control or extinguish;

1915.507(c)(6)—*Select, install, inspect, maintain, and test* all automatic fire detection systems and emergency alarms according to *NFPA 72-2002 National Fire Alarm Code [incorporated by reference, see § 1915.5]*.

1915.507(d)—Fixed extinguishing systems. The employer must *select, install, maintain, inspect, and test all fixed systems* required by OSHA.

Note to paragraph (d): Reference paragraph (d) for specific information.

1915.508—Training

Scope/Application: This section applies to shipyard employment.

STANDARD HIGHLIGHTS

- Training and Communications*—initial training, written training policy
- Programs, Policies and Procedures*—written policies and procedures
- Recordkeeping*—training records
- Qualified Person—qualified instructors
- Other—consensus standards

Training and Communications

1915.508(a)—The employer must *train employees in the applicable requirements of this section*.

- **1915.508(a)(1)**—*Within 90 days* of December 14, 2004, for employees currently working;
- **1915.508(a)(2)**—*Upon initial assignment* for new employees; and
- **1915.508(a)(3)**—*When necessary* to maintain proficiency for employees previously trained.

1915.508(b)—The employer must ensure that all *employees are trained* on specific criteria.

Note to paragraph (b): Reference paragraph (b) for the specific training requirements.

1915.508(c)—The employer must ensure that *employees expected to fight incipient stage fires are trained* on specific criteria.

Note to paragraph (c): Reference paragraph (c) for the specific training requirements.

1915.508(d)—The employer must:

- **1915.508(d)(1)**—Have a **written** training policy stating that fire response employees must be trained and capable of carrying out their duties and responsibilities at all times;
- **1915.508(d)(3)**—Review fire response employee training programs and hands-on sessions before they are used in fire response training to make sure that fire response employees are protected from hazards associated with fire response training;
- **1915.508(d)(4)**—Provide training for fire response employees that ensures they are capable of carrying out their duties and responsibilities under the employer’s standard operating procedures;
- **1915.508(d)(5)**—Train new fire response employees before they engage in emergency operations;
- **1915.508(d)(6)**—At least quarterly, provide training on the **written** operating procedures to fire response employees who are expected to fight fires;
- **1915.508(d)(7)**—Use qualified instructors to conduct the training;
- **1915.508(d)(8)**—Conduct any training that involves live fire response exercises in accordance with NFPA 1403-2002 Standard on Live Fire Training Evolutions [incorporated by reference, see § 1915.5];
- **1915.508(d)(9)**—Conduct semi-annual drills according to the employer’s **written** procedures for fire response employees that cover site-specific operations, occupancies, buildings, vessels and vessel sections, and fire-related hazards; and
- **1915.508(d)(10)**—Prohibit the use of smoke generating devices that create a dangerous atmosphere in training exercises.

1915.508(e)(1)—The employer must ensure that each fire watch is trained by an instructor with adequate fire watch knowledge and experience to cover the items as follows:

- **1915.508(e)(1)(i)**—Before being assigned to fire watch duty;
- **1915.508(e)(1)(ii)**—Whenever there is a change in operations that presents a new or different hazard;
- **1915.508(e)(1)(iii)**—Whenever the employer has reason to believe that the fire watch’s knowledge, skills, or understanding of the training previously provided is inadequate; and
- **1915.508(e)(1)(iv)**—Annually.

1915.508(e)(2)—The employer must ensure that each employee who stands fire watch duty is trained.

Note to paragraph (e)(2): Reference paragraph (e)(2) for the specific training requirements.

1915.508(e)(3)—The employer must ensure that each fire watch is trained to alert others to exit the space.

Note to paragraph (e)(3): Reference paragraph (e)(3) for the specific training requirements.

Programs, Policies and Procedures

1915.508(c)—The employer must ensure that employees expected to fight incipient stage fires are trained on the following:

- **1915.508(c)(1)**—The general principles of using fire extinguishers or hose lines, the hazards involved with incipient firefighting, and the procedures used to reduce these hazards;

1915.508(d)—The employer must:

- **1915.508(d)(1)**—Have a **written** training policy stating that fire response employees must be trained and capable of carrying out their duties and responsibilities at all times;
- **1915.508(d)(2)**—Keep **written** standard operating procedures that address anticipated emergency operations and update these procedures as necessary;
- **1915.508(d)(3)**—Review fire response employee training programs and hands-on sessions before they are used in fire response training to make sure that fire response employees are protected from hazards associated with fire response training;

- **1915.508(d)(4)**—Provide *training* for fire response employees that ensures they are capable of carrying out their duties and responsibilities under the employer’s *standard operating procedures*;
- **1915.508(d)(6)**—At *least quarterly*, provide *training* on the **written** *operating procedures* to fire response employees who are expected to fight fires;
- **1915.508(d)(9)**—Conduct *semi-annual drills* according to the *employer’s written procedures for fire response employees* that cover site-specific operations, occupancies, buildings, vessels and vessel sections, and fire-related hazards; and

Recordkeeping

1915.508(d)—The employer must:

- **1915.508(d)(1)**—Have a **written** *training policy* stating that fire response *employees must be trained* and capable of carrying out their duties and responsibilities at all times;
- **1915.508(d)(6)**—At *least quarterly*, provide *training* on the **written** *operating procedures* to fire response employees who are expected to fight fires;

1915.508(f)—The *employer must keep records* that demonstrate that employees *have been trained* as required by *paragraphs (a) through (e)* of this section.

1915.508(f)(2)—The *employer must keep each training record for one year* from the time it was made or until it is replaced with a *new training record*, whichever is shorter, and make it available *for inspection and copying* by OSHA on request.

Qualified Person

1915.508(d)—*Additional training requirements for shipyard employees designated for fire response*. The employer must:

- **1915.508(d)(7)**—Use *qualified instructors* to conduct the training;

1915.508(e)(1)—The employer must ensure that each fire watch is trained by an *instructor with adequate fire watch knowledge and experience* to cover the items as follows:

- **1915.508(e)(1)(i)**—*Before being assigned to fire watch duty*;
- **1915.508(e)(1)(ii)**—*Whenever there is a change in operations that presents a new or different hazard*;
- **1915.508(e)(1)(iii)**—*Whenever the employer has reason to believe that the fire watch’s knowledge, skills, or understanding of the training previously provided is inadequate*; and
- **1915.508(e)(1)(iv)**—*Annually*.

Other

1915.508(d)—*Additional training requirements for shipyard employees designated for fire response*. The employer must:

- **1915.508(d)(8)**—*Conduct any training that involves live fire response exercises in accordance with NFPA 1403-2002 Standard on Live Fire Training Evolutions, see § 1915.5 [Incorporated by Reference]*.

29 CFR 1915 Subpart Z—Toxic and Hazardous Substances

1915.1000—Air Contaminants

Scope/Application: *Wherever this section applies, an employee’s exposure to any substance listed in Table Z—Shipyards of this section shall be limited in accordance with the requirements of the following paragraphs of this section.*

STANDARD HIGHLIGHTS

- Exposure Monitoring—exposure to substances in Table Z

Exposure Monitoring

1915.1000(a)(1)—“Substances with limits preceded by ‘C’”—“Ceiling Values.” An employee’s exposure to any substance in Table Z—Shipyards, the exposure limit of which is preceded by a “C,” shall at no time exceed the exposure limit given for that substance. *If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time over a working day.*

1915.1000(a)(2)—“Other Substances”—“8-hour Time Weighted Averages.” An employee’s exposure to any substance in Table Z—Shipyards, the *exposure limit of which is not preceded by a “C,” shall not exceed the 8-hour Time Weighted Average given for that substance in any 8-hour work shift of a 40-hour work week.*

1915.1001—Asbestos

Scope/Application: *This section regulates asbestos exposure in all shipyard employment work as defined in 29 CFR 1915.*

STANDARD HIGHLIGHTS

- Exposure Monitoring—airborne concentrations
- Signs, Markings and Tags—regulated areas, posted signs, labels
- Programs, Policies and Procedures*—work controls, respirator program, medical surveillance program, hazard communication program
- Recordkeeping*—retention requirements
- Certification*—work practices and engineering controls
- Training and Communications*—informed of monitoring results
- Inspections and Tests—measuring PELs
- Medical Surveillance—program, initial, annual, and termination examinations, written opinions, information provided to the physician
- Competent Person—cutting machines
- Qualified Person—certified industrial hygienist, physician

Exposure Monitoring

1915.1001(c)(1)—Time-weighted average limit (TWA). The employer shall *ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A [OSHA Reference Method—Mandatory] to this section, or by an equivalent method.*

1915.1001(c)(2)—Excursion limit. The employer shall *ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A [OSHA Reference Method—Mandatory] to this section, or by an equivalent method.*

1915.1001(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.*

1915.1001(f)(1)(ii)—*Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.*

1915.1001(f)(1)(iii)—Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

1915.1001(f)(2)(i)—Each employer who has a workplace or work operation covered by this standard shall ensure that a “qualified 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.

1915.1001(f)(2)(ii)—*Basis of Initial Exposure Assessment:* Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) [Negative Initial Exposure Assessment] 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) [Negative Initial Exposure Assessment] of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

1915.1001(f)(2)(iii)—*Negative Initial 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.

Note to paragraph (f)(2)(iii): Reference paragraph (f)(2)(iii) for the specific training requirements.

1915.1001(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 paragraph (f)(2)(iii) [Negative Initial Exposure Assessment] of this section, has made a negative exposure assessment for the entire operation.

1915.1001(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.

1915.1001(f)(3)(iii)—Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the pressure demand mode, or other positive pressure mode respirator, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method which is not listed in paragraph (g)(4)(i), (ii), or (iii) [Methods of Compliance] of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

1915.1001(f)(4)(i)—If the periodic monitoring required by paragraph (f)(3) [Periodic Monitoring] of this section reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

1915.1001(f)(4)(ii)—*Additional monitoring.* Notwithstanding the provisions of paragraph (f)(2) and (3), and (f)(4) [Exposure Assessments and 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.

1915.1001(f)(5)—*Employee notification of monitoring results.* The employer must, as soon as possible but no later than 5 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.

1915.1001(f)(5)(i)—The employer shall notify affected employees of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results.

1915.1001(f)(5)(ii)—The employer shall notify affected employees of the results of monitoring representing the employee's exposure in **writing** either individually or by posting at a centrally located place that is accessible to affected employees.

1915.1001(f)(6)(i)—The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

1915.1001(g)(4)(ii)(B)—The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpart E of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring. Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this paragraph (g)(4)(ii) [Class 1 Requirements] is satisfied when the specific control methods in paragraph (g)(5) [Specific Control Systems for Class 1 Work] of this section are used.

1915.1001(g)(8)(vi)(A)—The employer shall demonstrate by 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, that employee exposure will not exceed the PELs under any anticipated circumstances.

1915.1001(g)(8)(vi)(B)—A qualified 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.

1915.1001(g)(9)(v)—Employees performing Class III jobs which involve the disturbance of TSI or surfacing ACM or PACM or where the employer does not demonstrate by a "negative exposure assessment" in compliance with paragraph (f)(2)(iii) [Negative Initial Exposure Assessment] of this section that the PELs will not be exceeded or where monitoring results show exceedances of the PEL, shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) [Respiratory Protection] of this section.

1915.1001(g)(11)(ii)—The employer may also comply by using an equivalent method which follows **written procedures**, which the employer demonstrates can achieve equivalent exposure reductions as do the two "preferred methods." Such demonstration must include monitoring data conducted under workplace conditions closely resembling the process, type of asbestos containing materials, control method, work practices and environmental conditions which the equivalent method will be used, or objective data, which document that under all reasonably foreseeable conditions of brake and clutch repair applications, the method results in exposures which are equivalent to the methods set out in Appendix L [Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection] to this section.

1915.1001(h)(2)(v)—Employers must provide employees with:

- **1915.1001(h)(2)(v)(A)**—A tight-fitting, powered air-purifying respirator or a full facepiece, supplied-air respirator operated in the pressure-demand mode and equipped with either HEPA egress cartridges or an auxiliary positive-pressure, self-contained breathing apparatus (SCBA) whenever the employees are in a regulated area performing Class I asbestos work for which a negative exposure assessment is not available and the exposure assessment indicates that the exposure level will be at or below 1 f/cc as an 8-hour time-weighted average (TWA).

- **1915.1001(h)(2)(v)(B)**—A full facepiece, supplied-air respirator operated in the pressure-demand mode and equipped with an auxiliary positive-pressure SCBA whenever the employees are in a regulated area performing Class I asbestos work for which *a negative exposure assessment is not available and the exposure assessment indicates that the exposure level will be above 1 f/cc as an 8-hour TWA.*

1915.1001(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 *qualified organizations such as industry trade associations and employee associations to maintain the records* required by this section.

1915.1001(n)(7)(ii)—The employer, upon request, shall *make any exposure records required by paragraphs (f)—Exposure Assessments and Monitoring and (n) [Recordkeeping] of this section available for examination and copying* to affected employees, former 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]*.

Signs, Markings and Tags

1915.1001(e)(2)—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) [Hazard Communication] of this section.*

1915.1001(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/vessel 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.*

1915.1001(k)(7)(i)—*Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers.* Where feasible, *installed asbestos products shall contain a visible label.*

1915.1001(k)(7)(ii)—The employer shall include asbestos in the *program* established to comply with the *Hazard Communication Standard (HCS) [§ 1910.1200]*. The employer shall ensure that each *employee has access to labels on containers of asbestos and safety data sheets, and is trained* in accordance with the provisions of the HCS and *paragraph (k)(9) [Employee Information and Training]* of this section. The employer shall ensure that at least the following hazards are addressed: Cancer and lung effects.

1915.1001(k)(7)(iii)—*Labels.*

- **1915.1001(k)(7)(iii)(A)**—The employer shall ensure that *labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers bear specific information.*
- **1915.1001(k)(7)(iii)(B)(1)**—*Prior to June 1, 2015, employers may include the following information on raw materials, mixtures or labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers in lieu of the labeling requirements in paragraphs (k)(7)(ii) and (k)(7)(iii)(A) [Labels].*
- **1915.1001(k)(7)(iii)(B)(2)**—*Labels shall also contain a warning statement against breathing asbestos fibers.*

Note to paragraph (k)(7)(iii): *Reference paragraph (k)(7)(iii) for the specific labeling requirements.*

1915.1001(k)(8)—*Signs.*

- **1915.1001(k)(8)(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.*
- **1915.1001(k)(8)(ii)**—The *warning signs* required by this *paragraph (k)(8) [Signs]* shall bear a legend.

Note to paragraph (k)(8)(ii) and (iii): *Reference paragraph (k)(8)(ii) and (iii) for the specific requirements.*

- **1915.1001(k)(8)(iv)**—The employer shall ensure that employees working in and contiguous to regulated *areas comprehend the warning signs required to be posted by paragraph (k)(8) [Signs]* of this section. Means to ensure *employee comprehension* may include the use of *foreign languages, pictographs, and graphics*.
- **1915.1001(k)(8)(v)**—When a building/vessel 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) 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*.

Programs, Policies and Procedures

1915.1001(g)(11)(i)—Engineering controls and *work practices* for brake and clutch repair and service. During automotive brake and clutch inspection, disassembly, repair and assembly operations, the employer shall institute engineering controls and *work practices* to reduce employee exposure to materials containing asbestos using a negative pressure enclosure/HEPA vacuum system method or low pressure/wet cleaning method, which meets the *detailed requirements* set out in *Appendix L—to this section*. The employer may also comply using an *equivalent method which follows written procedures* which the employer demonstrates can achieve results equivalent to Method A. For facilities in which no more than 5 pair of brakes or 5 clutches are *inspected*, disassembled, repaired, or assembled per week, the method set for in *paragraph (D) [Wet Method] of Appendix L [Work Practices and Engineering Controls for Automotive and Clutch Inspection, Disassembly, Repair and Assembly]* to this section may be used.

1915.1001(g)(11)(ii)—The employer may also comply by using an *equivalent method which follows written procedures*, which the employer demonstrates can achieve equivalent exposure reductions as do the two “preferred methods.” Such demonstration must include monitoring data conducted under workplace conditions closely resembling the process, type of asbestos containing materials, control method, *work practices* and environmental conditions which the equivalent method will be used, or *objective data*, which document that under all reasonably foreseeable conditions of brake and clutch repair applications, the method results in exposures which are equivalent to the methods set out in *Appendix L [Work Practices and Engineering Controls for Automotive and Clutch Inspection, Disassembly, Repair and Assembly]* to this section.

1915.1001(h)(3)(i)—When respiratory protection is used, the employer shall *institute a respiratory protection program* in accordance with *29 CFR 1910.134(b) through (d) (except paragraph (d)(1)(iii)), and (f) through (m) [Respiratory Protection]* which covers each employee required by this section to use a respirator.

1915.1001(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.

1915.1001(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/vessel 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*.

1915.1001(k)(7)(ii)—The employer shall *include asbestos in the program established to comply with the Hazard Communication Standard (HCS) [§ 1910.1200]*. The employer shall ensure that each employee has access to *labels* on containers of asbestos and *safety data sheets*, and *is trained* in accordance with the provisions of the HCS and *paragraph (k)(9) [Employee Information and Training]* of this section. The employer shall ensure that at least the following hazards are addressed: Cancer and lung effects.

1915.1001(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. Training shall be provided at no cost to the employee. The employer shall *institute a training program and ensure employee participation in the program*.

Recordkeeping

1915.1001(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 and additional information.

Note to paragraph (m)(4)(i): Reference paragraph (m)(4)(i) for the specific requirements.

1915.1001(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.

1915.1001(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*.

1915.1001(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]* of this section, the employer shall *establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption*.

1915.1001(n)(1)(iii)—The employer shall *maintain this record* for the duration of the employer's reliance upon such objective data.

1915.1001(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 qualified organizations such as industry trade associations and employee associations to maintain the records required by this section*.

1915.1001(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].

1915.1001(n)(3)(i)—The employer shall *establish and maintain an accurate record* for each employee subject to medical surveillance by *paragraph (m)—Medical Surveillance* of this section, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical records].

1915.1001(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].

1915.1001(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.

1915.1001(n)(5)(i)—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.

1915.1001(n)(6)(i)—Where the building/vessel owner has communicated and received information concerning the identity, location and quantity of ACM and PACM, *written records of such notifications and their content shall be maintained* by the owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities/vessels.

1915.1001(n)(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.

1915.1001(n)(7)(ii)—The employer, upon request, shall make any *exposure records* required by *paragraphs (f) [Exposure Assessments and Monitoring]* and *(n) [Recordkeeping]* of this section available for examination and copying to affected employees, former 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].

1915.1001(n)(7)(iii)—The employer, upon request, shall make *employee medical records* required by *paragraphs (m)—Medical Surveillance and (n)—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 1910.1020—Access to Employee Exposure and Medical records*.

1915.1001(n)(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]*.

Certification

1915.1001(g)(6)(iii)—Before work which involves the removal of more than 25 linear or 10 square feet of TSI or surfacing ACM/PACM is begun using an alternative method which has been the subject of a *paragraph (g)(6) [Methods of Compliance]* of this section *required evaluation and certification*, the employer shall send a copy of such *evaluation and certification* to the national office of OSHA, Office of Technical Support, Room N3653, 200 Constitution Avenue, NW, Washington, DC 20210. The submission shall not constitute approval by OSHA.

1915.1001(g)(8)(vi)(B)—*A qualified 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

1915.1001(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, 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.

1915.1001(f)(5)—*Employee notification of monitoring results*. The employer must, as soon as possible but no later than *5 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.

1915.1001(f)(5)(i)—The employer shall *notify affected employees* of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results.

1915.1001(f)(5)(ii)—The employer shall *notify affected employees* of the results of monitoring representing the employee's exposure *in writing* either *individually or by posting* at a centrally located place that is accessible to affected employees.

1915.1001(g)(4)(ii)(B)—The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in *40 CFR Part 763, Subpart E of the EPA Asbestos in Schools Rule* are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. *The results of such monitoring shall be made known to the employer no later than 24 hours* from the end of the work shift represented by such monitoring. Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this *paragraph (g)(4)(ii) [Class 1 Requirements]* is satisfied when the specific control methods in *paragraph (g)(5) [Specific Control Systems for Class 1 Work]* of this section are used.

1915.1001(g)(5)(v)—Water Spray Process System: A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a *40-hour separate training* course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

1915.1001(g)(6)(ii)(B)—The *evaluation* of employee exposure required in *paragraph (g)(6) [Alternative Control Methods for Class I Work]* of this section, shall *include and be based on sampling and analytical data representing* employee exposure during the use of such method under worst-case conditions and *by employees whose training and experience are equivalent to employees who are to perform the current job.*

1915.1001(g)(8)(i)—For removing vinyl and asphalt flooring/deck materials which contain ACM or for which in buildings constructed not later than 1980, the employer has not verified the absence of ACM pursuant to *paragraph (g)(8)(i)(I) [Additional Controls for Class II Work]*: the employer shall ensure that employees *comply with the following work practices* and that *employees are trained* in these practices pursuant to *paragraph (k)(9) [Employee Information and Training]* of this section.

Note to paragraph (g)(8)(i): Reference paragraph (g)(8)(i) for the specific requirements.

1915.1001(g)(8)(vi)(B)—A qualified 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.*

1915.1001(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.

1915.1001(g)(12)(ii)—All employees performing work covered by this *paragraph (g)(12) [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.

1915.1001(g)(12)(v)—Where roofing products which have been *labeled* as containing asbestos pursuant to *paragraph (k)(8) [Signs]* of this section are installed on non-residential roofs during operations covered by this *paragraph (g)(12) [Alternative Methods of Compliance for Installation, Removal, Repair, and Maintenance of Certain Roofing and Pipeline Coating Materials]*, the employer shall *notify the building owner* of the presence and location of such materials no later than the end of the job.

1915.1001(h)(2)(iii)(A)—*Inform employees* that they may require the employer to provide a tight-fitting, powered air-purifying respirator (PAPR) permitted for use under *paragraph (h)(2)(i) [Respirator Selection]* of this standard instead of a negative pressure respirator.

1915.1001(i)(2)(ii)—Any employer who gives contaminated clothing to another person for laundering shall *inform such person of the requirement in paragraph (i)(2)(i) [Protective Clothing]* of this section to effectively prevent the release of airborne asbestos in excess of the TWA excursion limit prescribed in *paragraph (c) [Permissible Exposure Levels]* of this section.

1915.1001(k)(1)—This section applies to the *communication of information concerning asbestos hazards* in shipyard employment activities to facilitate compliance with this standard. Most asbestos-related shipyard activities involve previously installed building materials. Building/vessel owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned *specific information conveying and retention duties* under this section. Installed Asbestos Containing Building/Vessel Material: Employers and building/vessel owners shall identify TSI and sprayed or troweled on surfacing materials as asbestos-containing unless the employer, by complying with *paragraph (k)(5) [Communication of Hazards]* of this section determines that the material is not asbestos-containing. Asphalt or vinyl flooring/decking material installed in buildings or vessels no later than 1980 must also be considered as asbestos containing unless the employer/owner, pursuant to *paragraph (g)(8)(i)(I) [Methods of Compliance]* of this section determines it is not asbestos containing. If the employer or building/vessel owner has actual knowledge or should have known, through the exercise of due diligence, that materials other than TSI and sprayed-on or troweled-on surfacing materials are asbestos-containing, they must be treated as such.

When communicating information to employees pursuant to this standard, owners and employers shall identify “PACM” as ACM. Additional requirements relating to communication of asbestos work on multi-employer worksites are set out in paragraph (d) of this standard.

1915.1001(k)(2)(ii)—Building/vessel and/or facility owners shall *notify the following persons of the presence, location and quantity of ACM or PACM, at work sites in their buildings/facilities/vessels. 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:*

1915.1001(k)(3)(ii)—Before work under this standard is performed employers of employees who will perform such work shall *inform persons of the location and quantity of ACM and/or PACM present at the worksite and the precautions to be taken to ensure that airborne asbestos is confined to the area.*

Note to paragraph (k)(3)(ii): *Reference paragraph (k)(3)(ii) for the specific requirements.*

1915.1001(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/vessel or 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 former regulated area and final monitoring results, if any.*

1915.1001(k)(4)—In addition to the above requirements, all employers who discover ACM and/or PACM on a work site 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.*

1915.1001(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/vessel 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.*

1915.1001(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. *Training shall be provided at no cost to the employee. The employer shall institute a training program and ensure employee participation in the program.*

1915.1001(k)(9)(ii)—*Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.*

1915.1001(k)(9)(iii)—*Training for Class I operations and for Class II operations that require the use of critical barriers (or equivalent isolation methods) and/or negative pressure enclosures under this section shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training [40 CFR part 763, subpart E, appendix C].*

1915.1001(k)(9)(iv)(A)—For work with asbestos containing roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, *training shall include at 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 category. Such course shall include “hands-on” training and shall take at least 8 hours.*

1915.1001(k)(9)(iv)(B)—An employee who works with more than one of the categories of material specified in paragraph (k)(9)(iv)(A) of this section shall *receive training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.*

1915.1001(k)(9)(iv)(C)—For Class II operations not involving the categories of material specified in paragraph (k)(9)(iv)(A) of this section, *training shall be provided which shall include at a minimum all the elements included in paragraph (k)(9)(viii) 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 the category of material being removed, and shall include “hands-on” training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.*

1915.1001(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.

1915.1001(k)(9)(vi)—*Training for employees performing Class IV operations* 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)(1)*. Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been *certified*; and *instruction* in the recognition of damage, deterioration, and delamination of asbestos containing building materials. Such a course shall *take at least 2 hours*.

1915.1001(k)(9)(vii)—*Training for employees who are likely to be exposed in excess of the PEL* and who are not otherwise required to be trained under *paragraph (k)(9)(viii) through (vi) [Employee Information and Training]* of this section, shall meet the requirements of *paragraph (k)(9)(viii) [Employee Information and Training]* of this section.

1915.1001(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 the provisions in *paragraph (k)(9)(viii) through (vi) [Employee Information and Training]* of this section, the employer shall *ensure that each such employee is informed*.

Note to paragraph (k)(9)(viii): *Reference paragraph (k)(9)(viii) for the specific requirements.*

1915.1001(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**.

1915.1001(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*.

1915.1001(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.

1915.1001(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.

Note to paragraph (m)(4)(i): *Reference paragraph (m)(4)(i) for the specific requirements.*

1915.1001(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.

1915.1001(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.

1915.1001(n)(4)—The employer shall *maintain all employee training records for one (1) year beyond the last date of employment by that employer*.

1915.1001(o)(4)(i)—For Class I and II asbestos work the *qualified 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.

1915.1001(o)(4)(ii)—For Class III and IV asbestos work, the *qualified 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. *Qualified persons for Class III and Class IV work may also be trained pursuant to the requirements of paragraph (o)(4)(i) [Training for the Competent Person] of this section.*

Inspections and Tests

1915.1001(c)(1)—Time-weighted average limit (TWA). The employer shall *ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A [OSHA Reference Method] to this section, or by an equivalent method.*

1915.1001(c)(2)—Excursion limit. The employer shall *ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A [OSHA Reference Method] to this section, or by an equivalent method.*

1915.1001(d)(4)—All employers of employees working adjacent to regulated areas established by another employer on a multi-employer worksite shall *take steps on a daily basis to ascertain the integrity of the enclosure and/ or the effectiveness of the control method* relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

1915.1001(d)(5)—All general contractors on a shipyard project which includes work covered by this standard shall be deemed to exercise general supervisory authority over the work covered by this standard, even though the general contractor is not *qualified to serve as the asbestos “qualified person” as defined by paragraph (b) [Definitions]* of this section. As supervisor of the entire project, the general contractor shall *ascertain whether the asbestos contractor is in compliance with this standard, and shall require such contractor to come into compliance with this standard when necessary.*

1915.1001(g)(5)(i)(B)(1)—Before beginning work within the enclosure and at the beginning of each shift, *the NPE shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.*

1915.1001(g)(5)(ii)(B)(2)—Glovebags shall be *smoke-tested for leaks* and any leaks sealed prior to use.

1915.1001(g)(5)(iv)(B)(2)—The box shall be *smoke-tested for leaks* and any leaks sealed prior to each use:

1915.1001(g)(8)(iv)(A)—If a gasket is *visibly deteriorated* and unlikely to be removed intact, removal shall be undertaken within a glovebag as described in *paragraph (g)(5)(ii) [Specific Control Systems for Class I Work]* of this section.

1915.1001(g)(11)(i)—Engineering *controls and work practices* for brake and clutch repair and service. *During automotive brake and clutch inspection, disassembly, repair and assembly operations, the employer shall institute engineering controls and work practices to reduce employee exposure to materials containing asbestos using a negative pressure enclosure/HEPA vacuum system method or low pressure/wet cleaning method, which meets the detailed requirements set out in Appendix L—Work Practices and Engineering Controls for Automotive Brake and Clutch Inspections, Disassembly, Repair and Assembly—Mandatory* to this section. The employer may also comply using an equivalent method which follows *written procedures* which the employer demonstrates can achieve results equivalent to Method A. For facilities in which no more than 5 pair of brakes or 5 clutches are *inspected, disassembled, repaired, or assembled* per week, the method set for in *paragraph [D] of Appendix L [Work Practices and Engineering Controls for Automotive Brake and Clutch Inspections, Disassembly, Repair and Assembly]—Mandatory* to this section may be used.

1915.1001(g)(12)(i)—*Before work begins and as needed during the job, a qualified 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.*

1915.1001(h)(2)(v)(A)—A tight-fitting, powered air-purifying respirator or a full facepiece, supplied-air respirator operated in the pressure-demand mode and equipped with either HEPA egress cartridges or an auxiliary positive-pressure, self-contained breathing apparatus (SCBA) whenever the employees are in a regulated area performing Class I asbestos work for which a negative exposure *assessment* is not available and the *exposure assessment indicates that the exposure level will be at or below 1 f/cc as an 8-hour time-weighted average (TWA).*

1915.1001(i)(4)(i)—The *qualified person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during the performance of work.*

1915.1001(i)(4)(ii)—*When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.*

1915.1001(k)(3)(i)—Before work in areas containing ACM and PACM is begun, employers shall *identify the presence, location, and quantity of ACM, and/or PACM therein pursuant to paragraph (k)(1) [Communication of Hazards] of this section.*

1915.1001(k)(5)(ii)—An employer or owner *may demonstrate* that PACM does not contain more than 1 percent asbestos by the following:

- **1915.1001(k)(5)(ii)(A)**—Having *completed an inspection* conducted pursuant to the requirements of *AHERA [40 CFR part 763, subpart E]* which demonstrates that the material is not ACM; or
- **1915.1001(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.*

1915.1001(o)(2)—*Required Inspections by the Qualified Person. Sec. 1926.20(b)(2) 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 qualified persons, is incorporated.*

1915.1001(o)(3)—*Additional Inspections. In addition, the qualified person shall make frequent and regular inspections of the job sites, in order to perform the duties set out in paragraph (o)(3)(i) [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.*

Medical Surveillance

1915.1001(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.

1915.1001(m)(1)(i)(B)—For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure employees are physically able to perform the work and use the equipment. This *determination shall be made under the supervision of a physician.*

1915.1001(m)(1)(ii)(A)—The employer shall ensure that *all medical examinations and procedures are performed by or under the supervision of a licensed physician*, and are provided at no cost to the employee and at a reasonable time and place.

1915.1001(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.*

1915.1001(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:

- **1915.1001(m)(2)(i)(A)**—*Prior to assignment* of the employee to an area where negative-pressure respirators are worn;

- **1915.1001(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*;
- **1915.1001(m)(2)(i)(C)**—And at *least annually* thereafter.
- **1915.1001(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.
- **1915.1001(m)(2)(i)(E)**—Exception: No medical examination is required of any employee if *adequate records show that the employee has been examined* in accordance with this paragraph within the *past 1-year period*.

1915.1001(m)(3)—*Information provided to the physician.* The employer shall provide specific information to the *examining physician*.

Note to paragraph (m)(3): Reference paragraph (m)(3) for specific information.

1915.1001(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* and other specific information.

Note to paragraph (m)(4)(i): Reference paragraph (m)(4)(i) for specific information.

1915.1001(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*.

1915.1001(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

1915.1001(g)(8)(ii)(C)—Cutting machines shall be continuously misted during use, *unless a competent person determines that misting substantially decreases worker safety*.

Qualified Person

1915.1001(e)(3)—Access. *Access to regulated areas* shall be limited to *authorized persons and to persons authorized by the Act or regulations issued pursuant thereto*.

1915.1001(e)(6)—*Qualified Persons.* The employer shall ensure that all asbestos work performed *within regulated areas is supervised by a qualified person*, as defined in *paragraph (b) [Definitions]* of this section. The duties of the *qualified person* are set out in *paragraph (o) [Qualified Person]* of this section.

1915.1001(f)(2)(i)—Each employer who has a workplace or work operation covered by this standard shall ensure that a *“qualified 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.

1915.1001(g)(4)(i)—All Class I work, including the installation and operation of the control system shall be *supervised by a qualified person* as defined in *paragraph (b) [Definitions]* of this section;

1915.1001(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.

- **1915.1001(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 “qualified person”*, and may omit consideration of perimeter or clearance monitoring otherwise required.

1915.1001(g)(7)(i)—All Class II work shall be *supervised by a qualified person* as defined in *paragraph (b) [Definitions]* of this section.

1915.1001(g)(8)(i)(I)—Resilient flooring/deck material in buildings/vessels constructed no later than 1980, including associated mastic and backing shall be assumed to be asbestos-containing *unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques*.

1915.1001(g)(8)(vi)(B)—A *qualified 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.

1915.1001(g)(12)(i)—Before work begins and as needed during the job, *a qualified 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.

1915.1001(i)(4)(i)—The *qualified person shall examine worksuits worn by employees* at least once per workshift for rips or tears that may occur during the performance of work.

1915.1001(k)(2)(ii)—*Building/vessel and/or facility owners* shall notify the following persons of the presence, location and quantity of ACM or PACM, at work sites in their buildings/facilities/vessels. *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*.

1915.1001(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.

1915.1001(k)(5)(iii)—The *employer and/or building/vessel 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.

1915.1001(m)(1)(i)(B)—For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure *employees are physically able to perform the work* and use the equipment. This determination shall be *made under the supervision of a physician*.

1915.1001(m)(1)(ii)(A)—The employer shall ensure that all medical examinations and procedures are *performed by or under the supervision of a licensed physician*, and are provided at no cost to the employee and at a reasonable time and place.

1915.1001(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.

1915.1001(m)(3)—*Information provided to the physician*. The employer shall provide specific *information* to the *examining physician*.

Note to paragraph (m)(3): Reference paragraph (m)(3) for specific information.

1915.1001(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 and additional information.

Note to paragraph (m)(4)(i): Reference paragraph (m)(4)(i) for specific information.

1915.1001(o)(1)—On all shipyard worksites covered by this standard, the employer shall *designate a qualified person, having the qualifications and authority for ensuring worker safety and health required by subpart C, General Safety and Health Provisions for Construction [29 CFR 1926.20 through 1926.32]*.

1915.1001(o)(2)—*Required Inspections by the Qualified Person. Sec. 1926.20(b)(2) [General Safety and Health Provisions] 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 qualified persons, is incorporated.*

1915.1001(o)(3)—*Additional Inspections. In addition, the qualified person shall make frequent and regular inspections of the job sites, in order to perform the duties set out in paragraph (o)(3)(i) [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.*

1915.1001(o)(3)(i)—On all worksites where employees are engaged in Class I or II asbestos work, the *qualified person designated in accordance with paragraph (e)(6) [Qualified Persons] of this section shall perform or supervise the specific duties.*

Note to paragraph (o)(3)(i): Reference paragraph (o)(3)(i) for specific information.

1915.1001(o)(4)(i)—For Class I and II asbestos work *the qualified 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.*

1915.1001(o)(4)(ii)—For Class III and IV asbestos work, *the qualified 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. Qualified persons for Class III and Class IV work may also be trained pursuant to the requirements of paragraph (o)(4)(i) [Training for Competent Persons] of this section.*

1915.1003—13 Carcinogens

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1003 of this chapter.*

1910.1003—13 Carcinogens

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, beta-Naphthylamine, Benzidine, 4-Aminodiphenyl, Ethyleneimine, beta-Propiolactone, 2-Acetylaminofluorene, 4-Dimethylaminoazo-benzene, and 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 or 4-Aminodiphenyl; and solid or liquid mixtures containing less than 1.0 percent by weight or volume of alpha-Naphthylamine; 3,3'-Dichlorobenzidine (and its salts); Ethyleneimine; beta-Propiolactone; 2-Acetylaminofluorene; 4-Dimethylaminoazobenzene, or N-Nitrosodimethylamine.*

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures*—respirator program, medical surveillance program, emergency procedures, hazard communication program
- Medical Surveillance*—program, initial, annual, and emergency examinations, written opinion
- Signs, Markings and Tags—posted signs, labels, posted emergency procedures
- Training and Communications*—initial and annual training
- Recordkeeping*—records
- Qualified Person*—physician

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)(i)—Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for each carcinogen listed in paragraph (e)(1)(iv) [List of Carcinogens] of this section.

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in paragraph (e)(1)(iv) [List of Carcinogens] of this section 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 the carcinogens listed in paragraph (e)(1)(iv) [List of Carcinogens] and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (e)(4) [Training and Indoctrination] 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)(i)—Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program.

Note to paragraph (e): Reference paragraph (e) for specific information.

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)—*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.

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.*

Note to paragraph (g): Reference paragraph (g) for specific information.

Signs, Markings and Tags

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in *paragraph (e)(1)(iv) [List of Carcinogens]* of this section 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 the carcinogens listed in *paragraph (e)(1)(iv) [List of Carcinogens]* and to **safety data sheets**, and is trained in accordance with the requirements of HCS and *paragraph (e)(4) [Training and Indoctrination]* of this section.

1910.1003(e)(2)(i)—The employer shall post entrances to regulated areas with signs bearing a legend.

Note to paragraph (e)(2)(i): Reference paragraph (e)(2)(i) for specific information.]

1910.1003(e)(2)(ii)—The employer shall post signs at entrances to regulated areas containing operations covered in *paragraph (c)(5) [Maintenance and Decontamination Activities]* 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.

Training and Communications

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in *paragraph (e)(1)(iv) [List of Carcinogens]* of this section 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 the carcinogens listed in *paragraph (e)(1)(iv) [List of Carcinogens]* and to **safety data sheets**, and is trained in accordance with the requirements of HCS and *paragraph (e)(4) [Training and Indoctrination]* 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)(i)—Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program [*Note: Reference paragraph (e) for specific information.*]

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(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.

Note to paragraph (g): Reference paragraph (g) for specific information.

Recordkeeping

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in *paragraph (e)(1)(iv) [List of Carcinogens]* of this section 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 the carcinogens listed in *paragraph (e)(1)(iv) [List of Carcinogens]* and to **safety data sheets**, and is trained in accordance with the requirements of HCS and *paragraph (e)(4) [Training and Indoctrination]* of this section.

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.

Note to paragraph (g): 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(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.*

1915.1017—Vinyl Chloride

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1017 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
- Exposure Monitoring*—program, monitoring quarterly, measurements, results posted
- Training and Communications*—initially, annually
- Medical Surveillance*—program, examinations, written opinions
- Signs, Markings and Tags—labels, posting signs
- Recordkeeping*—retention requirements, medical records, safety data sheets
- Qualified Person*—physician

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 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(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. [**Note:** 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(l)(1)(i)—Chemical manufacturers, importers, distributors and employers *shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200)* for vinyl chloride and polyvinyl chloride.

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(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.

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. [**Note:** 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.*

Note to paragraph (k): *Reference paragraph (k) for specific information.*

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.*

Note to paragraph (k): *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 (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(l)(2)(i)—*The employer shall post entrances to regulated areas with legible signs bearing a legend.*

Note to paragraph (l)(2)(i): *Reference paragraph (l)(2)(i) for specific information.*

1910.1017(l)(2)(ii)—*The employer shall post signs at areas containing hazardous operations or where emergencies currently exist.*

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.*

Note to paragraph (l)(3)(i): *Reference paragraph (l)(3)(i) for specific information.*

1910.1017(l)(5)—*Containers of vinyl chloride shall be legibly labeled.*

Recordkeeping

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.*

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.*

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.*

1915.1018—Inorganic Arsenic

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1018 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

- Exposure Monitoring*—initially, quarterly and 6 month monitoring, written results posted
- Programs, Policies and Procedures*—compliance program, respirator program, training program, housekeeping and maintenance plan, medical surveillance program, hazard communication program
- Medical Surveillance*—initial, examinations, written opinions
- Training and Communications*—program, initial and annual training
- Signs, Markings and Tags—posted signs, labels
- Recordkeeping*—retention requirements, safety data sheets
- Inspections and Tests—signs clean
- Qualified Person*—physician

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*.

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 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*.

1910.1018(p)(1)(i)—Chemical manufacturers, importers, distributors and employers *shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for inorganic arsenic*.

1910.1018(p)(1)(iii)—Employers *shall include inorganic arsenic 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 inorganic arsenic and to **safety data sheets**, and is trained* in accordance with the requirements of HCS and *paragraph (o) [Training Program] of this section*.

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*.

Note to paragraph (n)(5): Reference paragraph (n)(5) for specific information.

1910.1018(n)(6)(i)—The employer *shall obtain a **written** opinion from the examining physician*.

Note to paragraph (n)(6): 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*.

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*.

1910.1018(n)(6)(iii)—The employer *shall provide a **copy** of the **written** opinion to the affected employee*.

1910.1018(o)(1)(i)—The employer *shall train each employee who is subject to exposure to inorganic arsenic above the action level without regard to respirator use, or for whom there is the possibility of skin or eye irritation from inorganic arsenic, in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program*.

Note to paragraph (o)(1): Reference paragraph (o)(1) for specific information.

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*.

1910.1018(p)(1)(iii)—Employers *shall include inorganic arsenic 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 inorganic arsenic and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (o) [Training Program]* of this section.

Signs, Markings and Tags

1910.1018(j)(2)(vii)(A)—The employer shall ensure that the containers of contaminated protective clothing and equipment in the workplace or which are to be removed from the *workplace are labeled and that the labels include specific information*.

Note to paragraph (j)(2)(vii)(A): Reference paragraph (j)(2)(vii)(A) for specific information.

1910.1018(p)(1)(iii)—Employers shall include inorganic arsenic 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 inorganic arsenic and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (o) [Training Program] of this section.

1910.1018(p)(2)(i)—The employer shall post signs demarcating regulated areas bearing a legend.

Note to paragraph (p)(2)(i): Reference paragraph (p)(2)(i) for specific information.

Recordkeeping

1910.1018(p)(1)(iii)—Employers shall include inorganic arsenic 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 inorganic arsenic and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (o) [Training Program] of this section.

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].

Inspections and Tests

1910.1018(p)(2)(iii)—The employer shall ensure that signs required by this paragraph (p) [Hazard Communication] are illuminated and cleaned as necessary so that the legend is readily visible.

Qualified Person

1910.1018(n)(5)—Information provided to the physician. The employer shall provide information to the examining physician.

1910.1018(n)(6)(i)—The employer shall obtain a **written** opinion from the examining physician.

1915.1020—Access to Employee Exposure and Medical Records

Scope/Application: The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1020 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, SDS
- 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.

[**Note to paragraph (d)(1)(ii)(B): 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 maintained 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.

Note to paragraph (g)(1): 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**.

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. [**Note:** 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.

1915.1025—Lead

Scope/Application: The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1025 of this chapter.

1910.1025—Lead

Scope/Application: *This section applies to all occupational exposure to lead except in construction and agriculture.*

Exception: *This standard does not apply to lead exposures in construction or agricultural operations.*

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures*—compliance program, annual review, respirator program, medical surveillance program, training program, hazard communication program
- Exposure Monitoring*—initial, quarterly and semi-annual monitoring
- Medical Surveillance*—program, initial, annual and “other” examinations, biological monitoring, information provided to the physician, written opinions
- Training and Communications*—instructions, inform, training initially and annually
- Signs, Markings and Tags—posting
- Recordkeeping*—records, retention requirements, safety data sheets
- Inspections and Tests—signs cleaned
- Qualified Person*—physician

Programs, Policies and Procedures

1910.1025(e)(3)(i)—Each employer *shall establish and implement a **written** compliance program* to reduce exposures to or below the permissible exposure limit, and interim levels if applicable, solely by means of engineering and work practice controls in accordance with the implementation schedule in *paragraph (e)(1) [Method of Compliance]*.

1910.1025(e)(3)(iv)—**Written** programs *must be revised and updated at least annually* to reflect the current status of the program.

1910.1025(f)(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.

1910.1025(j)(1)(i)—The employer shall institute *a medical surveillance program* for all employees who are or may be exposed at or above the action level for more than 30 days per year.

1910.1025(l)(1)(ii)—The employer *shall train each employee who is subject to exposure* to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer *shall institute a training program* and ensure employee participation in the program.

Note to paragraph (l)(1): *Reference paragraph (l)(1) for specific information.*

1910.1025(m)(1)(i)—Chemical manufacturers, importers, distributors and employers *shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200)* for lead.

1910.1025(m)(1)(iii)—Employers shall include lead 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 lead and to safety data sheets, and is trained* in accordance with the requirements of HCS and *paragraph (l) [Training Program]* of this section.

Exposure Monitoring

1910.1025(d)(2)—*Initial determination.* Each employer who has a workplace or work operation covered by this standard *shall determine if any employee may be exposed to lead at or above the action level.*

1910.1025(d)(3)(i)—The employer *shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results* and any relevant considerations. [**Note:** *Reference paragraph (d)(3) for specific information.*]

1910.1025(d)(5)—Negative initial determination. Where a determination, conducted under *paragraphs (d)(2) and (3) [Exposure Monitoring]* 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) [Exposure Monitoring]* 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.

1910.1025(d)(6)(ii)—If the initial determination or subsequent monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer *shall repeat 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) [Exposure Monitoring] of this section.*

1910.1025(d)(6)(iii)—*If the initial monitoring reveals that employee exposure is above the permissible exposure limit the employer shall repeat monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are 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], except as otherwise provided in paragraph (d)(7) [Exposure Monitoring] of this section.*

1910.1025(d)(7)—Additional monitoring. Whenever there has been a production, process, control or personnel change which may result in new or additional exposure to lead, or whenever the employer has any other reason to suspect a change which may result in new or *additional exposures to lead, additional monitoring in accordance with this paragraph shall be conducted.*

1910.1025(d)(8)(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.*

1910.1025(d)(8)(ii)—Whenever the results indicate that the representative employee exposure, without regard to respirators, 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 or to be taken to reduce exposure to or below the permissible exposure limit.*

Medical Surveillance

1910.1025(j)(1)(i)—The employer *shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level for more than 30 days per year.*

1910.1025(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 paragraph (j)(1)(i) [Medical Surveillance] of this section on the following schedule:*

- **1910.1025(j)(2)(i)(A)**—*At least every 6 months to each employee covered under paragraph (j)(1)(i) of this section.*
- **1910.1025(j)(2)(i)(B)**—*At least every two months for each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/100 g of whole blood. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 µg/100 g of whole blood.*
- **1910.1025(j)(2)(i)(C)**—*At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level.*

1910.1025(j)(2)(ii)—*Follow-up blood sampling tests.* Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under *paragraph (k)(1)(i)(A) [Medical Removal Protection] of this section, the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.*

1910.1025(j)(3)(i)—*Frequency.* The employer *shall make available medical examinations and consultations to each employee covered under paragraph (j)(1)(i) [Medical Surveillance] of this section on the following schedule:*

- **1910.1025(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/100 g.*
- **1910.1025(j)(3)(i)(B)**—*Prior to assignment for each employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level.*

- **1910.1025(j)(3)(i)(C)**—*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, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use.*
- **1910.1025(j)(3)(i)(D)**—*As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.*

1910.1025(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.*

Note to paragraph (j)(3): Reference paragraph (j)(3) for specific information.

1910.1025(j)(3)(iv)(A)—*The employer shall provide an initial physician conducting a medical examination or consultation under this section with **information**.*

Note to paragraph (j)(3): Reference paragraph (j)(3) for specific information.

Training and Communications

1910.1025(d)(8)(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.*

1910.1025(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.*

Note to paragraph (j)(3): Reference paragraph (j)(3) for specific information.

1910.1025(j)(3)(iv)(A)—*The employer shall provide an initial physician conducting a medical examination or consultation under this section with **information**.*

Note to paragraph (j)(3): Reference paragraph (j)(3) for specific information.

1910.1025(j)(3)(v)(B)—*The employer shall instruct each examining and consulting physician.*

1910.1025(l)(1)(i)—*Each employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the content of Appendices A—Substance Data Sheet for Occupational Exposure to Lead and B—Employee Standard Summary of this regulation.*

1910.1025(l)(1)(ii)—*The employer shall train each employee who is subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.*

Note to paragraph (l)(1): Reference paragraph (l)(1) for specific information.

1910.1025(l)(1)(iii)—*The employer shall provide initial training by 180 days from the effective date for those employees covered by paragraph (l)(1)(ii) [Employee Information and Training] on the standard’s effective date and prior to the time of initial job assignment for those employees subsequently covered by this paragraph.*

1910.1025(l)(1)(iv)—*The training program shall be repeated at least annually for each employee.*

1910.1025(m)(1)(iii)—*Employers shall include lead 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 lead and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (l) [Training Program] of this section.*

Signs, Markings and Tags

1910.1025(d)(8)(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.

1910.1025(g)(2)(vii)(A)—The employer *shall ensure that labels of bags or containers of contaminated protective clothing and equipment include specific information.*

Note to paragraph (g)(2)(vii)(A): Reference paragraph (g)(2)(vii)(A) for specific information.

1910.1025(m)(1)(iii)—Employers shall include lead 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 lead and to **safety data sheets**, and is trained* in accordance with the requirements of HCS and paragraph (l) [Training Program] of this section.

1910.1025(m)(2)(i)—The employer *shall post warning signs* in each work area where the PEL is exceeded.

Note to paragraph (m)(2)(i): Reference paragraph (m)(2)(i) for specific information.

Recordkeeping

1910.1025(d)(5)—*Negative initial determination.* Where a determination, conducted under paragraphs (d)(2) [Initial Determination] and (3) [Basis of Initial Determination] 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) [Basis of Initial Determination] 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.

1910.1025(d)(8)(ii)—Whenever the results indicate that the representative employee exposure, without regard to respirators, 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 or to be taken* to reduce exposure to or below the permissible exposure limit.

1910.1025(m)(1)(iii)—Employers shall include lead 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 lead and to **safety data sheets**, and is trained* in accordance with the requirements of HCS and paragraph (l) [Training Program] of this section.

1910.1025(n)(1)(i)—The employer *shall establish and maintain an accurate **record** of all monitoring required in paragraph (d) [Exposure Monitoring]* of this section.

Note to paragraph (n): Reference paragraph (n) for specific record information.

1910.1025(n)(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.*

Note to paragraph (n): Reference paragraph (n) for specific record information.

1910.1025(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.

Note to paragraph (n): Reference paragraph (n) for specific record information.

1910.1025(n)(2)(iii)—The employer *shall keep, or assure that the examining physician keeps, the following medical records:*

- **1910.1025(n)(2)(iii)(A)**—A **copy** of the medical examination results including medical and work history required under paragraph (j) [Medical Surveillance] of this section.
- **1910.1025(n)(2)(iii)(B)**—A description of the laboratory procedures and a **copy** of any standards or guidelines used to interpret the test results or references to that information.
- **1910.1025(n)(2)(iii)(C)**—A **copy** of the results of biological monitoring.

1910.1025(n)(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.

1910.1025(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.

1910.1025(n)(3)(iii)—The employer shall maintain each medical removal **record** for at least the duration of an employee's employment.

1910.1025(n)(4)(i)—The employer shall make available upon request all **records** required to be maintained by paragraph (n) [Recordkeeping] of this section to the Assistant Secretary and the Director for examination and **copying**.

1910.1025(n)(4)(ii)—Environmental monitoring, medical removal, and medical **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 (2)-(i) [Access to Employee Exposure and Medical Records]. Medical removal **records** shall be provided in the same manner as environmental monitoring **records**.

1910.1025(n)(5)(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.

1910.1025(o)(2)(ii)(C)—Record the results obtained or receive **copies** of the results when returned by the laboratory.

Inspections and Tests

1910.1025(m)(2)(iii)—The employer shall ensure that signs required by this paragraph (m)(2) [Signs] are illuminated and cleaned as necessary so that the legend is readily visible.

Qualified Person

1910.1025(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:

1910.1025(j)(3)(iv)(A)—The employer shall provide an initial physician conducting a medical examination or consultation under this section with **information**.

1915.1026—Chromium (VI)

Scope/Application: This standard applies to occupational exposures to chromium (VI) in all forms and compounds in shipyards.

Exception: This standard does not apply to 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

- Exposure Monitoring*—determination, initial, six months, and periodic monitoring, posted results
- Signs, Markings and Tags—marked regulated areas, labels
- Programs, Policies and Procedures*—work controls, respirator program, medical surveillance program, hazard communication program
- Medical Surveillance*—program, annual, emergency and termination examinations, written opinion, information provided to the physician
- Training and Communications*—initial training, notifications
- Recordkeeping*—records, retention requirements, safety data sheets
- Qualified Person*—physician or other licensed health care professional [PLHCP]

Exposure Monitoring

1915.1026(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.

1915.1026(d)(2)(i)—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.

1915.1026(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*.

1915.1026(d)(2)(iv)—If monitoring reveals employee exposures to be above the PEL, the employer *shall perform periodic monitoring at least every three months*.

1915.1026(d)(2)(v)—If periodic monitoring indicates that employee exposures are below the action level, and the result is *confirmed by the result of another monitoring taken at least seven days later*, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

1915.1026(d)(2)(vi)—The employer *shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI)*, or when the employer has any reason to believe that new or additional exposures have occurred.

1915.1026(d)(4)(i)—*Within 5 work days* after making an *exposure determination* in accordance with *paragraph (d)(2) or paragraph (d)(3) [Exposure Determination]* 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.

1915.1026(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.

1915.1026(d)(5)—Accuracy of measurement. Where *air monitoring* is performed to comply with the requirements of this section, the employer shall use a *method of monitoring* and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/-25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

Signs, Markings and Tags

1915.1026(d)(4)(i)—*Within 5 work days* after making an exposure determination in accordance with *paragraph (d)(2) or paragraph (d)(3) [Exposure Determination]* 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*.

1915.1026(g)(2)(iv)—The employer shall ensure that bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal are *labeled in accordance with the requirements of the Hazard Communication Standard, § 1910.1200*.

1915.1026(j)(1)—The employer shall include chromium (VI) in the program established to comply with the *Hazard Communication Standard (HCS) [§ 1910.1200]*. The employer shall ensure that each employee has access to *labels on containers* of chromium (VI) and **safety data sheets**, and *is trained* in accordance with the provisions of HCS and *paragraph (j)(2) [Hazard Communication]* of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; skin sensitization; and eye irritation.

Programs, Policies and Procedures

1915.1026(e)(1)(i)—Except as permitted in *paragraph (e)(1)(ii)—Methods of Compliance* 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.

1915.1026(f)(2)—Respiratory protection program. Where respirator use is required by this section, the employer shall *institute a respiratory protection program in accordance with § 1910.134 [Respiratory Protection]*, which covers each employee required to use a respirator.

1915.1026(g)(2)(i)—The employer shall *ensure that employees remove all protective clothing and equipment contaminated with chromium (VI)* at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

1915.1026(g)(2)(ii)—The employer shall *ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace*, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

1915.1026(g)(2)(iii)—When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall *ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers*.

1915.1026(g)(2)(iv)—The employer shall *ensure that bags or containers of contaminated protective clothing or equipment that are removed from change rooms* for laundering, cleaning, maintenance, or disposal are *labeled* in accordance with the requirements of the *Hazard Communication Standard, § 1910.1200*.

1915.1026(h)(3)(i)—The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall *ensure that affected employees use these facilities when necessary*.

1915.1026(h)(3)(ii)—The employer shall *ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet*.

1915.1026(h)(4)(i)—Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall *ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI)*.

1915.1026(h)(4)(ii)—The employer shall *ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed* from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

1915.1026(h)(5)—Prohibited activities. The employer shall *ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas*.

1915.1026(i)(1)(ii)—The employer shall *assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP*.

1915.1026(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.

Note to paragraph (i)(4): *Reference paragraph (i)(4) for specific information.*

1915.1026(j)(1)—The employer shall include chromium (VI) in the *program* established to comply with the *Hazard Communication Standard (HCS) ([1910.1200]*. The employer shall ensure that each employee has access to *labels on containers* of chromium (VI) and **safety data sheets**, and is trained in accordance with the provisions of HCS and *paragraph (j)(2) [Hazard Communication]* of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; skin sensitization; and eye irritation.

1915.1026(j)(2)(i)—The employer shall *ensure that each employee can demonstrate knowledge*.

Note to paragraph (j)(2)(i): Reference paragraph (j)(2)(i) for specific information.

1915.1026(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].

1915.1026(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].

1915.1026(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].

1915.1026(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].

Medical Surveillance

1915.1026(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.

1915.1026(i)(2)—*Frequency.* The employer shall provide a medical examination:

- **1915.1026(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.*
- **1915.1026(i)(2)(ii)**—*Annually.*
- **1915.1026(i)(2)(iii)**—*Within 30 days after a PLHCP's **written** medical opinion recommends an additional examination.*
- **1915.1026(i)(2)(iv)**—*Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure.*
- **1915.1026(i)(2)(v)**—*Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI).*
- **1915.1026(i)(2)(vi)**—*At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i)—Medical Surveillance this section was less than six months prior to the date of termination.*

1915.1026(i)(4)—*Information provided to the PLHCP.* The employer shall ensure that the examining PLHCP has a **copy of this standard**, and shall provide information.

Note to paragraph (i)(4): Reference paragraph (i)(4) for specific information.

1915.1026(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.

Note to paragraph (i)(5)(i): Reference paragraph (i)(5)(i) for specific information.

Training and Communications

1915.1026(d)(4)(i)—*Within 5 work days after making an exposure determination in accordance with paragraph (d)(2) or paragraph (d)(3) [Exposure Determination] 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.*

1915.1026(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.

1915.1026(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.

1915.1026(i)(4)—*Information provided to the PLHCP.* The employer shall ensure that the *examining PLHCP* has a *copy of this standard*, and shall provide information.

Note to paragraph (i)(4): Reference paragraph (i)(4) for specific information.

1915.1026(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.

Note to paragraph (i)(5)(i): Reference paragraph (i)(5)(i) for specific information.

1915.1026(i)(5)(iii)—The employer shall provide a *copy of the PLHCP's written medical opinion to the examined employee within two weeks* after receiving it.

1915.1026(j)(1)—The employer shall include chromium (VI) in the *program established to comply with the Hazard Communication Standard (HCS) [§ 1910.1200]*. The employer shall ensure that each employee has access to *labels on containers of chromium (VI) and safety data sheets, and is trained* in accordance with the provisions of HCS and *paragraph (j)(2) [Hazard Communication]* of this section. The employer shall ensure that at least the following hazards are addressed: Cancer; skin sensitization; and eye irritation.

1915.1026(j)(2)(i)—The employer shall *ensure that each employee can demonstrate knowledge*.

Note to paragraph (j)(2)(i): Reference paragraph (j)(2)(i) for specific information.

1915.1026(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]*.

Recordkeeping

1915.1026(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.

Note to paragraph (i)(5)(i): Reference paragraph (i)(5)(i) for specific information.

1915.1026(k)(1)(i)—The employer shall *maintain an accurate record* of all air monitoring conducted to comply with the requirements of this section.

1915.1026(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]*.

1915.1026(k)(2)(i)—Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall *establish and maintain an accurate record of the historical monitoring data relied upon*.

1915.1026(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]*.

1915.1026(k)(3)(i)—The employer shall *maintain an accurate record of all objective data relied upon to comply with the requirements of this section*.

1915.1026(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]*.

1915.1026(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.

1915.1026(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]*.

Qualified Person

1915.1026(i)(1)(ii)—The employer shall assure that all medical examinations and procedures required by this section are *performed by or under the supervision of a PLHCP*.

1915.1026(i)(1)(ii)—The employer shall *assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP*.

1915.1026(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.

1915.1026(i)(4)—*Information provided to the PLHCP.* The employer shall ensure that the *examining PLHCP* has a *copy of this standard*, and shall provide information.

1915.1027—Cadmium

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1027 of this chapter.*

1910.1027—Cadmium

Scope/Application: *This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, and in all industries covered by the Occupational Safety and Health Act, except the construction-related industries, which are covered under 29 CFR 1926.63 [Process Safety Management of Highly Hazardous Chemicals].*

Exception: *This standard does not apply to exposures in the construction industry which is covered by 29 CFR 1926.63 [Process Safety Management of Highly Hazardous Chemicals].*

STANDARD HIGHLIGHTS

- Exposure Monitoring*—determination, initial and semi-annual monitoring, posted results
- Signs, Markings and Tags—regulated areas established, posted signs
- Programs, Policies and Procedures*—work controls established, compliance program, respirator program, emergency action plan, medical surveillance program, hazard communication program
- Medical Surveillance*—program, initial, annual, termination and “other” examinations, information provided to physician, hazard communication program
- Training and Communications*—initial and annual training
- Recordkeeping*—records, retention requirements, safety data sheets
- Qualified Person*—physician

Exposure Monitoring

1910.1027(d)(1)(i)—Each employer who has a workplace or work operation covered by this section *shall determine if any employee may be exposed to cadmium* at or above the action level.

1910.1027(d)(2)(i)—*Initial monitoring.* Except as provided for in paragraphs (d)(2)(ii) and (d)(2)(iii) [*Exposure Monitoring*] of this section, the employer *shall monitor employee exposures and shall base initial determinations on the monitoring results.*

1910.1027(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 represent the levels of exposure* of employees and where exposures are above the PEL to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls. However, such *exposure monitoring shall be performed at least every six months.* The employer, at a minimum, *shall continue these semi-annual measurements* unless and until the conditions set out in *paragraph (d)(3)(ii) [Exposure Monitoring]* are met.

1910.1027(d)(3)(ii)—If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level *and that result is confirmed by the results of another monitoring taken at least seven days later*, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

1910.1027(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 has any reason to suspect that any other change might result in such further exposure.*

1910.1027(d)(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.

1910.1027(d)(5)(ii)—Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer *shall include in the written notice a statement* that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

1910.1027(l)(15)(ii)—The employer *shall provide the employee with a **copy** of the employee’s biological monitoring results and an explanation **sheet** explaining the results* within two weeks after receipt thereof.

Signs, Markings and Tags

1910.1027(d)(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.

1910.1027(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).

1910.1027(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.

1910.1027(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) [Communication of Cadmium Hazards] of this section.*

1910.1027(m)(1)(iii)—Employers *shall include cadmium 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 cadmium and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (m)(4) [Employee Information and Training] of this section.*

1910.1027(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.

1910.1027(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)(1) [Hazard Communication] of this section.*

Programs, Policies and Procedures

1910.1027(f)(1)(i)—Except as specified in *paragraphs (f)(1)(ii), (iii) and (iv) [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.

1910.1027(f)(1)(ii)—Except as specified in *paragraphs (f)(1)(iii) and (iv) [Methods of Compliance] of this section*, in industries where a separate engineering control air limit (SECAL) has been specified for particular processes (See Table 1), the employer *shall implement engineering and work practice controls* to reduce and maintain employee exposure at or below the SECAL, except to the extent that the employer can demonstrate that such controls are not feasible.

1910.1027(f)(2)(i)—Where the PEL is exceeded, the employer *shall establish and implement a **written** compliance program* to reduce employee exposure to or below the PEL by means of engineering and work practice controls, as required by *paragraph (f)(1) [Methods of Compliance] of this section*. 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.

1910.1027(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)), and (f) through (m)*, which covers each employee required by this section to use a respirator.

1910.1027(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.

1910.1027(l)(1)(i)(A)—Currently exposed—The employer *shall institute a medical surveillance program* for all employees who are or may be exposed to cadmium at or above the action level unless the employer demonstrates that the employee is not, and will not be, exposed at or above the action level on 30 or more days per year (twelve consecutive months)

1910.1027(m)(1)(i)—Chemical manufacturers, importers, distributors and employers *shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200)* for cadmium.

1910.1027(m)(1)(iii)—Employers *shall include cadmium 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 cadmium and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (m)(4) [Employee Information and Training]* of this section.

Medical Surveillance

1910.1027(l)(1)(i)(A)—Currently exposed—The employer *shall institute a medical surveillance program* for all employees who are or may be exposed to cadmium at or above the action level unless the employer demonstrates that the employee is not, and will not be, exposed at or above the action level on 30 or more days per year (twelve consecutive months)

1910.1027(l)(2)(i)—The employer *shall provide an initial (preplacement) examination* to all employees covered by the *medical surveillance program* required in *paragraph (l)(1)(i) [Medical Surveillance]* of this section. 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.

1910.1027(l)(4)(i)—*Periodic medical surveillance.* For each employee who is covered under *paragraph (l)(1)(i)(A) [Medical Surveillance]*, 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] 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.

1910.1027(l)(4)(iii)—*Periodic biological monitoring shall be provided* in accordance with *paragraph (l)(2)(ii)(B) [Medical Surveillance]*.

1910.1027(l)(5)(i)—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), (3) or (4) [Medical Surveillance]* of this section, the employer, *within 30 days, shall reassess the employee's occupational exposure to cadmium and take corrective action* until the physician determines they are no longer necessary.

1910.1027(l)(6)(i)—To determine an employee's fitness for respirator use, the employer shall provide a medical examination that includes the elements specified in *paragraph (l)(6)(A)-(D) [Examination for Respirator Use]*. 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.

1910.1027(l)(7)(i)—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*.

1910.1027(l)(8)(i)—*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, to any employee to whom at any prior time the employer was required to provide medical surveillance under *paragraphs (l)(1)(i) or (l)(7) [Medical Surveillance]* 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) [Biological Monitoring] or (l)(5) [Actions Triggered by Medical Examinations]*.

1910.1027(l)(9)—*Information provided to the physician:* The employer *shall provide information* to the examining physician.

Note to paragraph (l): Reference paragraph (l) for specific information.

1910.1027(l)(10)(i)—The employer shall promptly obtain a **written**, medical opinion from the examining physician for each medical examination performed on each employee.

Note to paragraph (l): Reference paragraph (l) for specific information.

- **1910.1027(l)(10)(i)(E)**—A **statement** that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further *evaluation* or treatment, and any limitation on the employee's diet or use of medications.

1910.1027(l)(11)(v)—However, when in the examining physician's opinion continued exposure to cadmium will not pose an increased risk to the employee's health and there are special circumstances that make continued medical removal an inappropriate remedy, the physician shall fully discuss these matters with the employee, and then in a **written determination** may return a worker to his/her former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter, the returned employee shall continue to be provided with medical surveillance as if he/she were still on medical removal until the employee's levels of CdU fall to or below 3 µg/g Cr, CdB falls to or below 5 µg/lwb, and B(2)-M falls to or below 300 µg/g Cr.

1910.1027(l)(11)(i)(D)—For any employee who is medically removed under the provisions of paragraph (l)(11)(i) [Medical Removal Protection] of this section, the employer shall provide follow-up biological monitoring in accordance with (l)(2)(ii)(B) [Biological Monitoring] at least every three months and follow-up medical examinations semi-annually at least every six months until in a **written** medical opinion the examining physician determines that either the employee may be returned to his/her former job status as specified under paragraph (l)(11)(iv)-(v) [Medical Removal Protection] or the employee must be permanently removed from excess cadmium exposure.

1910.1027(l)(12)(iii)(A)—The employer shall make available to the employee a medical examination pursuant to this section in order to obtain a final medical determination as to whether the employee may be returned to his/her former job status or must be permanently removed from excess cadmium exposure.

1910.1027(l)(15)(i)—The employer shall provide a **copy** of the physician's **written** medical opinion to the examined employee within two weeks after receipt thereof.

1910.1027(l)(15)(ii)—The employer shall provide the employee with a **copy** of the employee's biological monitoring results and an explanation **sheet** explaining the results within two weeks after receipt thereof.

1910.1027(l)(15)(iii)—Within 30 days after a request by an employee, the employer shall provide the employee with the **information** the employer is required to provide the examining physician under paragraph (l)(9) [Information Provided to a Physician] of this section.

Training and Communications

1910.1027(d)(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.

1910.1027(d)(5)(ii)—Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer shall include in the **written** notice a **statement** that the PEL has been exceeded and a description of the *corrective action* being taken by the employer to reduce employee exposure to or below the PEL.

1910.1027(l)(9)—**Information** provided to the physician: The employer shall provide **information** to the examining physician.

Note to paragraph (l): Reference paragraph (l) for specific information.

1910.1027(l)(15)(i)—The employer shall provide a **copy** of the physician's **written** medical opinion to the examined employee within two weeks after receipt thereof.

1910.1027(l)(15)(ii)—The employer shall provide the employee with a **copy** of the employee's biological monitoring results and an explanation **sheet** explaining the results within two weeks after receipt thereof.

1910.1027(m)(1)(iii)—Employers shall include cadmium 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 cadmium and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (m)(4) [Employee Information and Training] of this section.

1910.1027(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 such program.

1910.1027(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.

Note to paragraph (m)(4): Reference paragraph (m)(4) for specific training information.

Recordkeeping

1910.1027(d)(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.

1910.1027(d)(5)(ii)—Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer shall include in the **written** notice a **statement** that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

1910.1027(l)(10)(i)—The employer shall promptly obtain a **written**, medical opinion from the examining physician for each medical examination performed on each employee.

Note to paragraph (l)(10)(i): Reference paragraph (l)(10) for specific information.

1910.1027(m)(1)(iii)—Employers shall include cadmium 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 cadmium and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (m)(4) [Employee Information and Training] of this section.

1910.1027(n)(1)(i)—The employer shall establish and keep an accurate **record** of all air monitoring for cadmium in the workplace.

1910.1027(n)(1)(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].

1910.1027(n)(2)(ii)—The employer shall establish and maintain a **record** of the objective data for at least 30 years.

1910.1027(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.

1910.1027(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.

1910.1027(n)(5)—Transfer of **records**. Whenever an employer ceases to do business and there is no successor employer to receive and retain **records** for the prescribed period or the employer intends to dispose of any **records** required to be preserved for at least 30 years, 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].

Qualified Person

1910.1027(l)(9)—Information provided to the physician: The employer shall provide **information** to the examining physician.

1910.1027(l)(10)(i)—The employer shall promptly obtain a **written**, medical opinion from the examining physician for each medical examination performed on each employee.

- **1910.1027(I)(10)(i)(E)**—A *statement that the physician has clearly and carefully explained* to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further *evaluation* or treatment, and any limitation on the employee’s diet or use of medications.

1910.1027(I)(11)(v)—However, when in the examining *physician’s* opinion continued exposure to cadmium will not pose an increased risk to the employee’s health and there are special circumstances that make continued medical removal an inappropriate remedy, the *physician* shall fully discuss these matters with the employee, and then in a *written determination* may return a worker to his/her former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter, the returned employee *shall continue to be provided with medical surveillance* as if he/she were still on medical removal until the employee’s levels of CdU fall to or below 3 µg/g Cr, CdB falls to or below 5 µg/lwb, and B(2)-M falls to or below 300 µg/g Cr.

1915.1028—Benzene

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1028 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

- Signs, Markings and Tags—regulated area established, post signs
- Exposure Monitoring*—determination, periodic monitoring, posted results
- Programs, Policies and Procedures*—compliance program, respirator program, medical surveillance program, training program, hazard communication program
- Medical Surveillance*—program, initial, annual and “other” examinations, written opinion
- Training and Communications*—program initial and annual training
- Recordkeeping*—retention requirements, records, safety data sheets
- Qualified Person*—physician

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.

1910.1028(j)(2)(i)—The employer *shall post signs* at entrances to regulated areas.

1910.1028(j)(2)(iii)—The employer *shall ensure that labels or other appropriate forms of warning are provided for containers* of benzene within the workplace. There is no requirement to label pipes. The *labels shall comply with the requirements of paragraph (j)(1) [Hazard Communication] of this section and Sec. 1910.1200(f) [Labels and Other Forms of Warning].*

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.

Programs, Policies and Procedures

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.

1910.1028(f)(2)(ii)—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.

1910.1028(g)(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.

1910.1028(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)(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.

1910.1028(j)(1)(i)—Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (*Sec. 1910.1200*) for benzene.

1910.1028(j)(1)(iii)—Employers shall include benzene 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 benzene and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (j)(3) [Information and Training] of this section.

1910.1028(j)(3)(ii)—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.

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)(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.

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.

Note to paragraph (i)(6): 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.

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.

Note to paragraph (i)(6): 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 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.*

1910.1028(j)(1)(iii)—*Employers shall include benzene 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 benzene and to **safety data sheets**, and is trained in accordance with the requirements of HCS and *paragraph (j)(3) [Information and Training]* of this section.*

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.*

Note to paragraph (j)(3): Reference paragraph (j)(3) for specific information.

Recordkeeping

1910.1028(j)(1)(iii)—*Employers shall include benzene 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 benzene and to **safety data sheets**, and is trained in accordance with the requirements of HCS and *paragraph (j)(3) [Information and Training]* of this section.*

1910.1028(k)(1)(i)—*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*].*

Qualified Person

1910.1028(i)(6)—*Information provided to the physician. The employer shall provide **information** to the examining physician.*

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.*

1915.1030—Bloodborne Pathogens

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1030 of this chapter.*

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

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

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.

Note to paragraph (c)(1): *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(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.

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.

Note to paragraph (c)(1): *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)(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)(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*.

Note to paragraph (h)(1): Reference paragraph (h)(1) for specific information.

Signs, Markings and Tags

1910.1030(d)(2)(xiv)(A)—A *readily observable label* in accordance with *paragraph (g)(1)(i)(H) [Labels]* shall be attached to the equipment stating which portions remain contaminated.

1910.1030(d)(4)(iii)(B)(1)(iii)—*Labeled or color-coded* in accordance with *paragraph (g)(1)(i) [Labels]* this standard (containers).

1910.1030(g)(1)(i)(A)—*Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to store, transport or ship blood or other potentially infectious materials, 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*.

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***.

Note to paragraph (f)(4): 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*.

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**.

Note to paragraph (f)(4): 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.*

Note to paragraph (h)(1): 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.

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)(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(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 [Recordkeeping—Retention and Updating]*.

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.

Note: HIV and HBV research laboratories and production facilities shall also meet the criteria below.

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures*—written procedures, written biosafety manual
- Signs, Marking and Tags—posted signs
- Inspections and Tests—routine checks of vacuum lines
- Certification*—biological safety cabinets certified annually
- Training and Communications—initial and additional training
- Recordkeeping*—certification

Programs, Policies and Procedures

1910.1030(e)(2)(ii)(C)—Access to the work area shall be limited to authorized persons. **Written policies and procedures** shall be established whereby only persons who have been advised of the potential biohazard, who meet any specific entry requirements, and who comply with all entry and exit procedures shall be allowed to enter the work areas and animal rooms.

1910.1030(e)(2)(ii)(M)—A biosafety **manual** shall be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.

Signs, Markings and Tags

1910.1030(e)(2)(ii)(D)—When other potentially infectious materials or infected animals are present in the work area or containment module, a hazard warning sign incorporating the universal biohazard symbol shall be **posted** on all access doors. The hazard warning sign shall comply with paragraph (g)(1)(ii) [Signs] of this standard.

Inspections and Tests

1910.1030(e)(2)(ii)(I)—Vacuum lines shall be protected with liquid disinfectant traps and high-efficiency particulate air (HEPA) filters or filters of equivalent or superior efficiency and which are checked routinely and maintained or replaced as necessary.

Certification

1910.1030(e)(2)(iii)(B)—Biological safety cabinets shall be **certified** when installed, whenever they are moved and at least annually.

Training and Communications

1910.1030(e)(2)(ii)(K)—All spills shall be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially concentrated infectious materials.

1910.1030(e)(2)(ii)(M)—A biosafety **manual** shall be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.

1910.1030(e)(5)—*Training Requirements.* Additional training requirements for employees in HIV and HBV research laboratories and HIV and HBV production facilities are specified in paragraph (g)(2)(ix) [Additional Initial Training].

1910.1030(g)(2)(ix)—*Additional Initial Training for Employees in HIV and HBV Laboratories and Production Facilities.* Employees in HIV or HBV research laboratories and HIV or HBV production facilities shall receive initial training in addition to the above training requirements.

Recordkeeping

1910.1030(e)(2)(iii)(B)—*Biological safety cabinets shall be **certified** when installed, whenever they are moved and at least annually.*

1910.1030(e)(2)(ii)(M)—*A biosafety **manual** shall be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.*

1915.1044—1,2-Dibromo-3-Chloropropane

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1044 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

- Exposure Monitoring*—initially, every 6 months, emergency, and quarterly monitoring, posted results
- Programs, Policies and Procedures*—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, hazard communication program
- Medical Surveillance*—program, initial and annual examinations
- Training and Communications*—initial training
- Signs, Markings and Tags—regulated areas, posted signs, labels
- Recordkeeping*—retention requirements, records, safety data sheets
- Qualified Person*—physician

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.*

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.

Programs, Policies and Procedures

1910.1044(g)(1)—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.

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(h)(2)—*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.

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)(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. [**Note:** 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.

1910.1044(o)(1)(i)—Chemical manufacturers, importers, distributors and employers *shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200)* for DBCP.

1910.1044(o)(1)(iii)—Employers shall include DBCP 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 DBCP 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.

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.

Note to paragraph (m): 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.*

Note to paragraph (m)(4): 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 vasectomized 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.*

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.

Note to paragraph (m)(4): 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(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.

1910.1044(o)(1)(iii)—Employers shall include DBCP 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 DBCP 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.

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(j)(2)(v)—Containers of DBCP-contaminated protective devices or work clothing which are to be taken out of change rooms or the workplace for cleaning, maintenance or disposal shall bear labels with the following information: CONTAMINATED WITH 1,2-Dibromo-3-chloropropane (DBCP), MAY CAUSE CANCER.

1910.1044(k)(1)(iii)(b)—Portable vacuum units used to collect DBCP may not be used for other cleaning purposes and shall be labeled as prescribed by *paragraph (j)(2)(v)* of this section.

1910.1044(o)(2)(i)—The employer shall post signs to clearly indicate all regulated areas.

1910.1044(o)(3)(ii)—The employer shall ensure that the precautionary labels required by this *paragraph (o)(3) [Labels]* are readily visible and legible.

Recordkeeping

1910.1044(o)(1)(iii)—Employers shall include DBCP 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 DBCP 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.

1910.1044(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]*.

Qualified Person

1910.1044(m)(4)—*Information provided to the physician.* The employer shall provide the following **information** to the examining physician.

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.

1915.1045—Acrylonitrile

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1045 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

- Exposure Monitoring*—initially, every 6 months, and quarterly monitoring, posted results
- Programs, Policies and Procedures*—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, hazard communication program
- Medical Surveillance*—program, initial, annual, termination and “other” examinations
- Training and Communications*—training program, initial and annual training
- Signs, Markings and Tags—posted signs, labels
- Recordkeeping*—retention requirements, records, safety data sheets
- Inspections and Tests—signs cleaned
- Qualified Person*—physician

Exposure Monitoring

1910.1045(e)(2)—*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.

1910.1045(e)(3)(ii)—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 a part*, 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.

Programs, Policies and Procedures

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.

Note to paragraph (g): 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.*

Note to paragraph (n)(1): 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 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*.

Note to paragraph (o)(1)(i): 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.

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.*

Note to paragraph (n): 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.

Note to paragraph (n)(5): Reference paragraph (n)(5) for specific 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.

Training and Communications

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.

1910.1045(j)(2)(v)—The employer shall inform any person who launders or cleans protective clothing or equipment of the potentially harmful effects of exposure to AN.

1910.1045(n)(5)—Information provided to the physician. The employer shall provide **information** to the examining physician.

Note to paragraph (n)(5): Reference paragraph (n)(5) for specific information.

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.

1910.1045(n)(6)(iii)—The employer shall provide a **copy** of the **written** opinion to the affected employee.

1910.1045(o)(1)(i)—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.

Note to paragraph (o)(1)(ii): Reference paragraph (o)(1)(ii) for specific information.

1910.1045(o)(1)(ii)—Training shall be provided at the time of initial assignment, or upon institution of the training program, and at least annually thereafter.

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.

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.

Note to paragraph (p)(2)(i): 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.

Recordkeeping

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.*

1910.1045(q)(2)(iii)—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.*

1910.1045(q)(3)(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.*

1910.1045(q)(3)(iii)—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.*

1910.1045(q)(5)(i)—Whenever the employer *ceases to do business, the successor employer shall receive and retain all records* required to be maintained by this section for the prescribed period.

1910.1045(q)(5)(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].*

Inspections and Tests

1910.1045(p)(2)(ii)—The employer *shall ensure that signs required by this paragraph (p)(2) [Signs] are illuminated and cleaned* as necessary so that the legend is readily visible.

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.

1915.1047—Ethylene Oxide

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1047 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 under the expected conditions of processing, use, or handling that will cause the greatest possible release.*

STANDARD HIGHLIGHTS

- Exposure Monitoring*—determination, monitoring, posted results
- Programs, Policies and Procedures*—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, hazard communication program
- Medical Surveillance*—program, initial and annual examinations, written opinion
- Training and Communications*—initial and annual training, training program, hazard communication program
- Signs, Markings and Tags—regulated areas, labels
- Recordkeeping*—retention requirements, records, safety data sheets
- Qualified Person*—physician

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.*

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.*

1910.1047(f)(2)(iii)—*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.*

1910.1047(g)(2)—*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.*

1910.1047(h)(1)(i)—*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.*

- **1910.1047(h)(1)(iii)**—*The plan shall include the elements prescribed in 29 CFR 1910.38 and 29 CFR 1910.39, “Emergency action plans” and “Fire prevention plans,” respectively.*

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(j)(1)(i)—*Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for EtO.*

1910.1047(j)(1)(iii)—*Employers shall include EtO 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 EtO and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (j)(3) [Information and Training] of this section.*

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.*

Note to paragraph (i)(3): Reference paragraph (i)(3) for specific information.

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.*

Note to paragraph (i)(4)(i): Reference paragraph (i)(4)(i) for specific information.

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.*

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)(3)—**Information** provided to the physician. The employer shall provide **information** to the examining physician as specified in the standard.

Note to paragraph (i)(3): Reference paragraph (i)(3) for specific information.

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)(1)(iii)—Employers shall include EtO 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 EtO and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (j)(3) [Information and Training] of this section.

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.

Note to paragraph (j)(3)(i): Reference paragraph (j)(3)(i) for specific information.

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)(iii)—Employers shall include EtO 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 EtO and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (j)(3) [Information and Training] of this section.

1910.1047(j)(2)(i)(A)—The employer shall post and maintain legible signs demarcating regulated areas and entrances or access ways to regulated areas that bear a legend.

Note to paragraph (j)(2)(i)(A): Reference paragraph (j)(2)(i)(A) for specific information.

1910.1047(j)(2)(ii)(A)—The employer shall ensure that 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 (j)(2)(ii) [Labels], reaction vessels, storage tanks, and pipes or piping systems are not considered to be containers.

Recordkeeping

1910.1047(j)(1)(iii)—Employers shall include EtO 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 EtO and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (j)(3) [Information and Training] of this section.

1910.1047(k)(1)(i)—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].*

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.*

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.

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(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.*

1915.1048—Formaldehyde

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1048 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

- Exposure Monitoring*—periodic monitoring, posted results
- 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
- Signs, Markings and Tags—regulated areas, posted signs, labels
- Medical Surveillance*—questionnaires, initial and annual examinations
- Training and Communications*—training program, initial and annual training
- Recordkeeping*—retention requirements
- Qualified Person*—physician

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.

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(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.

Note to paragraph (l): *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.*

Note to paragraph (n)(3): *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.*

Signs, Markings and Tags

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.*

Note to paragraph (e)(1)(i): *Reference paragraph (e)(1)(i) for specific information.*

1910.1048(h)(2)(ii)(A)—**Signs.** Storage areas for contaminated clothing and equipment shall have signs bearing a legend.

Note to paragraph (h)(2)(ii)(A): *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.*

Note to paragraph (h)(2)(ii)(B): *Reference paragraph (h)(2)(ii)(B) for specific information.*

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)(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.

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. [**Note:** 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)(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)(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)(6)—*Information provided to the physician.* The employer shall provide **information** to the examining physician (specifically listed in standard).

Note to paragraph (l)(6): 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.*

Training and Communications

1910.1048(e)(3)—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.

1910.1048(h)(2)(iii)—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.

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(j)(4)—Formaldehyde-contaminated waste and debris resulting from leaks or spills shall be placed for disposal in sealed containers *bearing a label warning of formaldehyde's presence and of the hazards associated with formaldehyde. The employer shall ensure that the labels are in accordance with paragraph (m) [Hazard Communication] of this section.*

1910.1048(l)(6)—*Information provided to the physician. The employer shall provide **information** to the examining physician (specifically listed in standard).*

Note to paragraph (l)(6): Reference paragraph (l)(6) for specific information.

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(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(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.*

Note to paragraph (n)(3): 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.*

Recordkeeping

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(o)(1)—*Exposure measurements. The employer shall establish and maintain an accurate **record** of all measurements taken to monitor employee exposure to formaldehyde.*

1910.1048(o)(2)—*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.*

1910.1048(o)(3)—*Medical surveillance. The employer shall establish and maintain an accurate **record** for each employee subject to medical surveillance under this standard.*

1910.1048(o)(4)(i)—*The employer shall establish and maintain accurate **records** for employees subject to negative pressure respirator fit testing required by this standard.*

1910.1048(o)(5)—***Record retention. The employer shall retain records** required by this standard for at least the following periods:*

- **1910.1048(o)(5)(i)**—*Exposure **records** and determinations shall be kept for at least 30 years.*
- **1910.1048(o)(5)(ii)**—*Medical **records** shall be kept for the duration of employment plus 30 years.*
- **1910.1048(o)(5)(iii)**—*Respirator fit testing **records** shall be kept until replaced by a more recent **record**.*

Qualified Person

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)(6)—*Information provided to the physician. The employer shall provide **information** to the examining physician (specifically listed in standard).*

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.**

1915.1050—Methylenedianiline

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1050 of this chapter.*

1910.1050—Methylenedianiline

Scope/Application: *This section applies to occupational exposure to Methylenedianiline.*

Exception: *This standard 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; 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; 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; does not apply to the construction industry (Exposure to MDA in the construction industry is covered by 29 CFR 1926.60); does not apply to materials in any form which contain less than 0.1 percent MDA by weight or volume; does not apply to “finished articles containing MDA.”*

STANDARD HIGHLIGHTS

- Programs, Policies and Procedures*—emergency plan, fire prevention plan, compliance program, training program, respirator program, work controls, medical surveillance program, housekeeping program, hazard communication program
- Exposure Monitoring*—determinations, monitoring initially, every 6 months, and quarterly, posted results
- Inspections and Tests*—visual inspections, corrective actions, documentation
- Signs, Markings and Tags—marked regulated areas, labels, posted results
- Training and Communications*—inform launderers, initial and annual training, SDS
- Medical Surveillance*—program, initial, annual, emergency and “other” examinations, written opinions
- Recordkeeping*—records, retention requirements, safety data sheets
- Qualified Person*—physician

Programs, Policies and Procedures

1910.1050(d)(1)(i)—*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.*

- **1910.1050(d)(1)(iii)**—*The plan shall specifically include provisions for alerting and evacuating affected employees as well as the *elements prescribed in 29 CFR 1910.38 and 29 CFR 1910.39, “Emergency action plans” and “Fire prevention plans,”* respectively.*

1910.1050(g)(1)(i)—*The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to MDA at or below the PELs except to the extent that the employer can establish that these controls are not feasible or where the provisions of *paragraphs (g)(1)(ii) or (h)(1)(i) through (iv) [Methods of Compliance]* of this section apply.*

1910.1050(g)(2)(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 (g)(1) [Methods of Compliance]* of this section, and by use of respiratory protection where permitted under this section. The program shall include a schedule for periodic maintenance (e.g., leak detection) and shall include the **written** plan for emergency situations as specified in *paragraph (d) [Emergency Situations]* of this section.

1910.1050(g)(2)(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.

1910.1050(h)(2)—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 respirator.

1910.1050(k)(1)(i)—Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for MDA.

1910.1050(k)(1)(iii)—Employers shall include MDA 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 MDA and to **safety data sheets**, and is trained in accordance with the requirements of HCS and *paragraph (k)(4) [Information and Training]* of this section.

1910.1050(l)(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.

1910.1050(m)(1)(i)—The employer shall make available a medical surveillance program for employees exposed to MDA.

Note to paragraph (m): Reference paragraph (m) for specific information.

Exposure Monitoring

1910.1050(e)(1)(i)—Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's exposure to airborne MDA over an eight (8) hour period. Determination of employee exposure to the STEL shall be made from breathing zone air samples collected over a 15 minute sampling period.

1910.1050(e)(2)—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.

1910.1050(e)(3)(i)—If the monitoring required by *paragraph (e)(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 representative monitoring for each such employee at least every six (6) months.

1910.1050(e)(3)(ii)—If the monitoring required by *paragraph (e)(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.

1910.1050(e)(5)—Additional monitoring. The employer shall institute the exposure monitoring required under *paragraph (e)(2) [Initial Monitoring]* and *(e)(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.

1910.1050(e)(7)(i)—The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this standard, notify each employee of these results, in **writing**, either individually or by **posting** of results in an appropriate location that is accessible to affected employees.

Inspections and Tests

1910.1050(e)(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. If the employer determines that the employee has been exposed to MDA the employer shall:

- **1910.1050(e)(8)(i)**—Determine the source of exposure.
- **1910.1050(e)(8)(ii)**—Implement protective measures to correct the hazard.
- **1910.1050(e)(8)(iii)**—Maintain **records** of the corrective actions in accordance with paragraph (n) [Record-keeping] of this section.

Signs, Markings and Tags

1910.1050(e)(7)(i)—The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this standard, notify each employee of these results, in **writing**, either individually or by **posting** of results in an appropriate location that is accessible to affected employees.

1910.1050(f)(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.

1910.1050(f)(1)(ii)—Dermal exposures. Where employees are subject to dermal exposure to MDA the employer shall establish those work areas as regulated areas.

1910.1050(f)(2)—*Demarcation.* Regulated areas shall be demarcated from the rest of the workplace in a manner that minimizes the number of persons potentially exposed.

1910.1050(k)(2)(i)(A)—The employer shall post and maintain legible signs demarcating regulated areas and entrances or access ways to regulated areas that bear a legend.

Note to paragraph (k)(2)(i)(A): Reference paragraph (k)(2)(i)(A) for specific information.

Training and Communications

1910.1050(e)(7)(i)—The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this standard, notify each employee of these results, in **writing**, either individually or by **posting** of results in an appropriate location that is accessible to affected employees.

1910.1050(i)(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.

1910.1050(k)(4)(i)—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.

1910.1050(m)(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, whichever is later.

1910.1050(m)(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.

Medical Surveillance

1910.1050(m)(1)(i)—The employer shall make available a medical surveillance program for employees exposed to MDA.

Note to paragraph (m): Reference paragraph (m) for specific information.

1910.1050(m)(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 (m)(1)(i) [Medical Surveillance] with a medical examination.*

1910.1050(m)(3)(i)—*The employer shall provide each employee covered by this section with a medical examination at least annually following the initial examination.*

1910.1050(m)(4)—*Emergency examinations.* If the employer determines that the employee has been exposed to a potentially hazardous amount of MDA in an emergency situation as addressed in *paragraph (d)* of this section, the employer shall provide medical examinations in accordance with *paragraphs (m)(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 (m)(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.

1910.1050(m)(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 a liver function test. 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.

1910.1050(m)(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, whichever is later.*

1910.1050(m)(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.*

Recordkeeping

1910.1050(a)(8)—*Where products containing MDA are exempted under paragraphs (a)(2) through (a)(7) [Scope] 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 (n) [Recordkeeping] of this section.*

1910.1050(k)(3)—*Safety data sheets (SDS).* In meeting the obligation to provide *safety data sheets*, employers shall make appropriate use of the information found in *Appendices A and B to Sec. 1910.1050.*

1910.1050(k)(5)(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.*

1910.1050(k)(5)(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.*

1910.1050(n)(1)(i)—*Where as a result of the initial monitoring the processing, use, or handling of products made from or containing MDA are exempted from other requirements of this section under paragraph (a)(2) [Scope] of this section, the employer shall establish and maintain an accurate record of monitoring relied on in support of the exemption.*

1910.1050(n)(1)(iii)—*The employer shall maintain this record for the duration of the employer's reliance upon such objective data.*

1910.1050(n)(2)(i)—*Where the processing, use, or handling of products made from or containing MDA are exempted from other requirements of this section under paragraph (a) [Scope] of this section, the employer shall establish and maintain an accurate record of objective data relied upon in support of the exemption.*

1910.1050(n)(2)(iii)—*The employer shall maintain this record for the duration of the employer's reliance upon such objective data.*

1910.1050(n)(3)(i)—The employer shall establish and maintain an accurate **record** of all measurements required by paragraph (e) [Exposure Monitoring] of this section, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1050(n)(3)(iii)—The employer shall maintain this record for at least 30 years, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1050(n)(4)(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, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1050(n)(4)(iv)—The employer shall maintain this **record** for at least the duration of employment plus 30 years, in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].

1910.1050(n)(5)(i)—The employer shall establish and maintain an accurate **record** for each employee removed from current exposure to MDA pursuant to paragraph (m) [Medical Surveillance] of this section.

1910.1050(n)(5)(iii)—The employer shall maintain each medical removal **record** for at least the duration of an employee's employment plus 30 years.

1910.1050(n)(7)—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].

Qualified Person

1910.1050(m)(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 a liver function test. 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.

1910.1050(m)(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, whichever is later.

1910.1050(m)(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.

1915.1052—Methylene Chloride

Scope/Application: The requirements applicable to shipyard employment under this section are identical to those set forth at 29 CFR 1910.1052.

1910.1052—Methylene Chloride

Scope/Application: This section applies to occupational exposure to methylene chloride.

STANDARD HIGHLIGHTS

- Exposure Monitoring*—initial and periodic monitoring, posted results
- Signs, Markings and Tags—marked regulated areas
- Training and Communications*—initial and annual training, instruct physician
- Programs, Policies and Procedures*—work controls, respirator program, action plan, hazard communications program
- Medical Surveillance*—initial and periodic examinations, written opinion
- Recordkeeping*—retention requirements, records
- Qualified Person*—physician

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.

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.

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(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.

Note to paragraph (j): Reference paragraph (j) 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(k)—*Hazard communication.* The employer shall communicate the following hazards associated with MC on labels and in **safety data sheets** 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: cancer, cardiac effects (including elevation of carboxyhemoglobin), central nervous system effects, liver effects, and skin and eye irritation.

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)(4)—The employer *shall train each affected employee* as required under the Hazard Communication standard at 29 CFR 1910.1200, 29 CFR 1915.1200, or 29 CFR 1926.59, as appropriate.

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.

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(g)(4)(ii)**—*Ensure that the PLHCP provides their findings in a **written** opinion to the employee and the employer.*

1910.1052(k)(1)(i)—Chemical manufacturers, importers, distributors and employers *shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200)* for MC.

1910.1052(k)(1)(iii)—Employers shall *include MC 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 MC and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (l) [Employee Information and Training] of this section.*

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.

Note to paragraph (j): 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.

Note to paragraph (j)(9): 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.

Note to paragraph (j)(14): Reference paragraph (j)(14) for specific information.

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(k)(1)(iii)—Employers shall include MC 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 MC and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (l) [Employee Information and Training] of this section.

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].

Qualified Person

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(g)(4)(ii)—Ensure that the PLHCP provides their findings in a **written** opinion to the employee and the employer.

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.

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.

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.

1915.1200—Hazard Communication

Scope/Application: The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1200 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
- Signs, Markings and Tags*—chemicals labeled, written materials, update in 3 months
- Recordkeeping*—SDS readily available, update in 3 months
- Training and Communications*—initial training
- Other*—trade secrets, written requests
- Qualified Person*—healthcare

Programs, Policies and Procedures

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.

Note to paragraph (e): 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).

Note to paragraph (g)(2): Reference paragraph (g)(2) for specific information.

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).

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)(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)(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.*

Recordkeeping

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 29 CFR 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.*

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 the *written materials* are readily accessible to the employees in their work area throughout each work shift.

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)(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**.*

Note to paragraph (h): 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.

Other

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.*

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)—*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)(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***.

1915.1450—Occupational Exposure to Hazardous Chemicals in Laboratories

Scope/Application: *The requirements applicable to shipyard employment under this section are identical to those set forth at 1910.1450 of this chapter.*

1910.1450—Occupational Exposure to Hazardous Chemicals in Laboratories

Scope/Application: *This section shall apply to all employers engaged in the laboratory use of hazardous chemicals. For laboratories, this section shall supersede the requirements of all other OSHA health standards in 29 CFR 1910, subpart Z except requirements limiting employee exposure and prohibition of eye and skin contact.*

Exception: *This standard does not apply to uses of hazardous chemicals that do not meet the definition of laboratory use.*

STANDARD HIGHLIGHTS

- Exposure Monitoring*—initial monitoring, posted results
- Programs, Policies and Procedures*—chemical hygiene plan, chemical hygiene officer and committee, SDS
- Signs, Markings and Tags—labels

- Training and Communications*—initial and refresher training
- Medical Surveillance*—information provided to the physician, written opinions
- Recordkeeping*—records, retention requirements
- Qualified Person*—physician

Exposure Monitoring

1910.1450(d)(1)—*Initial monitoring.* The employer shall measure the employee's exposure to any substance regulated by a standard which requires monitoring if there is reason to believe that exposure levels for that substance routinely exceed the action level (or in the absence of an action level, the PEL).

1910.1450(d)(2)—*Periodic monitoring.* If the initial monitoring prescribed by paragraph (d)(1) [Initial Monitoring] of this section discloses employee exposure over the action level (or in the absence of an action level, the PEL), the employer shall immediately comply with the exposure monitoring provisions of the relevant standard.

1910.1450(d)(4)—*Employee notification of monitoring results.* The employer shall, within 15 working days after the receipt of any monitoring results, notify the employee of these results in **writing** either individually or by **posting** results in an appropriate location that is accessible to employees.

Programs, Policies and Procedures

1910.1450(e)(1)—Where hazardous chemicals as defined by this standard are used in the workplace, the employer shall develop and carry out the provisions of a **written** Chemical Hygiene Plan. [Note: Reference paragraph (e) for specific information.]

1910.1450(e)(3)(vii)—*Designation of personnel responsible* for implementation of the Chemical Hygiene Plan including the assignment of a Chemical Hygiene Officer; and, if appropriate, establishment of a Chemical Hygiene Committee.

1910.1450(e)(4)—The employer shall review and evaluate the effectiveness of the Chemical Hygiene Plan at least annually and update it as necessary.

1910.1450(h)(1)(ii)—Employers shall maintain any **safety data sheets** that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees.

1910.1450(h)(2)(iii)—If the chemical substance is produced for another user outside of the laboratory, the employer shall comply with the Hazard Communication Standard (29 CFR 1910.1200) including the requirements for preparation of **safety data sheets** and labeling.

Signs, Markings and Tags

1910.1450(h)(2)(iii)—If the chemical substance is produced for another user outside of the laboratory, the employer shall comply with the Hazard Communication Standard (29 CFR 1910.1200) including the requirements for preparation of **safety data sheets** and labeling.

Training and Communications

1910.1450(d)(4)—*Employee notification of monitoring results.* The employer shall, within 15 working days after the receipt of any monitoring results, notify the employee of these results in **writing** either individually or by **posting** results in an appropriate location that is accessible to employees.

1910.1450(f)(1)—The employer shall provide employees with **information** and training to ensure that they are apprised of the hazards of chemicals present in their work area.

Note to paragraph (f)(1): Reference paragraph (f)(1) for specific information.

1910.1450(f)(2)—Such information shall be provided at the time of an employee's initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new exposure situations. The frequency of refresher information and training shall be determined by the employer.

1910.1450(g)(3)—**Information** provided to the physician. The employer shall provide **information** to the physician.

Note to paragraph (g)(3): Reference paragraph (g)(3) for specific information.

1910.1450(g)(4)(i)—For examination or consultation required under this standard, the employer *shall obtain a **written opinion from the examining physician.***

Note to paragraph (g)(4): Reference paragraph (g)(4) for specific information.

Medical Surveillance

1910.1450(g)(1)—The employer *shall provide* all employees who work with hazardous chemicals an *opportunity to receive medical attention, including any follow-up examinations* which the examining physician determines to be necessary, under certain circumstances.

Note to paragraph (g)(1): Reference paragraph (g)(1) for specific information.

1910.1450(g)(1)(i)—Whenever an employee *develops signs or symptoms* associated with a hazardous chemical to which the employee may have been exposed in the laboratory, the employee *shall be provided an opportunity to receive an appropriate medical examination.*

1910.1450(g)(1)(ii)—Where *exposure monitoring reveals an exposure level routinely above the action level (or in the absence of an action level, the PEL)* for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements, *medical surveillance shall be established* for the affected employee as prescribed by the particular standard.

1910.1450(g)(1)(iii)—*Whenever an event takes place* in the work area such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the *affected employee shall be provided an opportunity for a medical consultation.* Such consultation shall be for the purpose of determining the need for a medical examination.

1910.1450(g)(3)—*Information provided to the physician. The employer shall provide **information** to the physician.*

Note to paragraph (g)(3): Reference paragraph (g)(3) for specific information.

1910.1450(g)(4)(i)—For examination or consultation required under this standard, the employer *shall obtain a **written opinion from the examining physician.***

Note to paragraph (g)(4)(i): Reference paragraph (g)(4)(i) for specific information.

Recordkeeping

1910.1450(j)(1)—The employer *shall establish and maintain for each employee an accurate **record*** of any measurements taken to monitor employee exposures and any medical consultation and examinations *including tests or **written opinions*** required by this standard.

1910.1450(j)(2)—The employer *shall assure that such **records** are kept, transferred, and made available in accordance with 29 CFR 1910.1020 [Access to Employee Exposure and Medical Records].*

Qualified Person

1910.1450(e)(3)(vii)—*Designation of personnel responsible* for implementation of the Chemical Hygiene Plan including the *assignment of a Chemical Hygiene Officer; and, if appropriate, establishment of a Chemical Hygiene Committee.*

1910.1450(g)(3)—*Information provided to the physician. The employer shall provide **information** to the physician.*

1910.1450(g)(4)(i)—For examination or consultation required under this standard, the employer *shall obtain a **written opinion from the examining physician.***

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.nclabor.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 Internet: <http://www.nclabor.com>.

Occupational Safety and Health Division

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Local Telephone: 919-807-2900 Fax: 919-807-2856

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 3rd Floor)

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
Telephone: 919-807-2875 Fax: 919-807-2876

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 4th Floor)

For information concerning occupational safety and health consultative services contact:

Consultative Services Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-807-2899 Fax: 919-807-2902

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 3rd Floor)

For information concerning migrant housing inspections and other related activities contact:

Agricultural Safety and Health Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-807-2923 Fax: 919-807-2924

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 2nd Floor)

For information concerning occupational safety and health compliance contact:

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

For statistical information concerning program activities contact:

Planning, Statistics and Information Management Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-807-2950 Fax: 919-807-2951

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 2nd Floor)

For information about safety videos, labor-related books or electronic resources contact:

N.C. Department of Labor Library

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-807-2850 Fax: 919-807-2849

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 5th Floor)

N.C. Department of Labor (Other than OSH)

1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-733-7166 Fax: 919-733-6197