

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



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

Josh Dobson
Commissioner of Labor

**N.C. Department of Labor
Occupational Safety and Health Program**

Josh Dobson
Commissioner of Labor
OSHA State Plan Designee

Kevin Beauregard
Deputy Commissioner for Safety and Health

Scott Mabry
Assistant Deputy Commissioner for Safety and Health

Wanda Lagoe
Reviewer

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
Raleigh, NC 27699-1101
Phone: 919-707-7876 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 2011–2012 is \$17,841,216. Federal funding provides approximately 31 percent (\$5,501,500) of this total.

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Foreword

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

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

Josh Dobson
Commissioner of Labor

Overview

This industry guide is designed to assist employers in the ship repair, shipbuilding and shipbreaking industry 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 (ETTA) 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 919-707-7846. You may also want to visit their website at <https://www.labor.nc.gov/safety-and-health/occupational-safety-and-health/safety-and-health-consultation-program>.

For training events, publications, PowerPoint presentations and standard interpretations, please contact the Education, Training and Technical Assistance Bureau at 919-707-7876 or access the ETTA website at <https://www.labor.nc.gov/safety-and-health/training>.

How to Use This Industry Guide

This guide was developed to assist 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, plans and procedures-related requirement: Indicates required programs or plans, which can be written or unwritten, and/or be a mix of procedures (e.g.; work practices, engineering controls) or policies 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.” The term “competent person” for purposes of this part means a person who is capable of recognizing and evaluating employee exposure to hazardous substances or to other unsafe conditions and is capable of specifying the necessary protection and precautions to be taken to ensure the safety of employees as required by the particular regulation under the condition to which it applies. For the purposes of subparts B, C, and D of this part, except for 1915.35(b)(8) and 1915.36(a)(5), to which the above definition applies, the competent person must also meet the additional requirements of 1915.7.

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, marine chemists, certified industrial hygienists and U.S. Coast Guard authorized 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 requirement: Indicates rules that have special requirements other than those listed above, such as consensus standards.

Section 2 contains state-specific standards, Section 3 contains recordkeeping standards, and Section 4 contains general industry standards. These sections are broken out by subpart and sections within the subpart that have special requirements. Each section will contain a “Scope/Application” that explains the scope or application of the standard (who 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 implied documentation requirements are italicized and bolded.

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

SECTION 1

13 NORTH CAROLINA ADMINISTRATIVE CODE											
CHAPTER 7—OFFICE OF OCCUPATIONAL SAFETY AND HEALTH											
SUBCHAPTER 7A—GENERAL RULES AND OPERATIONAL PROCEDURES											
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 A—G—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
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	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	

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				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	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					X	
1915.89—Control of Hazardous Energy (lockout/tags-plus)	X	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—Motor 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				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						
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		
1915.505—Fire Response	X	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	
1915.1003—13 Carcinogens	X		X		X		X		X	X	
1910.1003—13 Carcinogens	X		X		X		X		X	X	
1915.1017—Vinyl Chloride	X		X		X	X	X		X	X	

1910.1017— <i>Vinyl Chloride</i>	X		X		X	X	X		X	X	
1915.1018—Inorganic Arsenic	X		X		X	X	X		X	X	
1910.1018— <i>Inorganic Arsenic</i>	X		X		X	X	X		X	X	
1915.1020—Access to Employee Exposure and Medical Records			X		X				X		
1910.1020— <i>Access to Employee Exposure and Medical Records</i>			X		X				X		
1915.1025—Lead	X		X		X	X	X		X	X	
1910.1025— <i>Lead</i>	X		X		X	X	X		X	X	
1915.1026—Chromium (VI)	X		X		X	X	X		X	X	
1915.1027—Cadmium	X		X		X	X	X		X	X	
1910.1027— <i>Cadmium</i>	X		X		X	X	X		X	X	
1915.1028—Benzene	X		X		X	X	X		X	X	
1910.1028— <i>Benzene</i>	X		X		X	X	X		X	X	
1915.1030—Bloodborne Pathogens	X		X	X	X	X	X		X	X	
1910.1030— <i>Bloodborne Pathogens</i>	X		X	X	X	X	X		X	X	
1915.1044—1,2-Dibromo-3-Chloropropane	X		X		X	X	X		X	X	
1910.1044— <i>1,2-Dibromo-3-Chloropropane</i>	X		X		X	X	X		X	X	
1915.1045—Acrylonitrile	X	X	X		X	X	X		X	X	
1910.1045— <i>Acrylonitrile</i>	X	X	X		X	X	X		X	X	
1915.1047—Ethylene Oxide	X		X		X	X	X		X	X	
1910.1047— <i>Ethylene Oxide</i>	X		X		X	X	X		X	X	
1915.1048—Formaldehyde	X	X	X		X	X	X		X	X	
1910.1048— <i>Formaldehyde</i>	X	X	X		X	X	X		X	X	
1915.1050—Methylenedianiline	X	X	X		X	X	X		X	X	
1910.1050— <i>Methylenedianiline</i>	X	X	X		X	X	X		X	X	
1915.1052—Methylene Chloride	X		X		X	X	X		X	X	
1910.1052— <i>Methylene Chloride</i>	X		X		X	X	X		X	X	
1915.1200—Hazard Communication	X		X		X				X	X	
1910.1200— <i>Hazard Communication</i>	X		X		X				X	X	
1915.1450—Occupational Exposure to Hazardous Chemicals in Laboratories	X		X		X	X	X		X	X	
1910.1450— <i>Occupational Exposure to Hazardous Chemicals in Laboratories</i>	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. General Statute (NCGS) 95, Article 22, which is titled “Safety and Health Programs and Committees.”*

STANDARD HIGHLIGHTS

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

Programs, Plans and Procedures

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

7A .0604—Selection of Safety Committees—(a) An employer may elect to implement any one of the selection processes [found in 13 NCAC 07A .0604] as a means of meeting the requirements for selection of representatives to employee Safety and Health committees pursuant to G.S. 95-252(d). The employer shall **retain written documentation** outlining any utilized selection process. An employer whose employees are represented by a collective bargaining representative must utilize either subsection 8, 9, or 10 for committee selection purposes. Any non-management employees who choose not to participate in the collective bargaining process are still considered to be represented by the collective bargaining representative for purposes of this Rule for committee selection purposes. [Reference Section 07A .0604—Selection of Safety Committees, Section 07A .0605—Safety and Health Committee Requirements, and N.C. 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 .0606—Training and Education—(a) All safety and health committee members *shall receive training and education* based on the type of business activity in which the employer is involved and the scope of the committee’s duties. [Reference Section 7A .0606—Training and Education for specific training requirements.]

7A .0606—Training and Education—(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 .0604—Selection of Safety Committees—(a) An employer *may elect to implement any one of the selection processes [found in 13 NCAC 07A .0604] as a means of meeting the requirements for selection of representatives to employee Safety and Health committees* pursuant to G.S. 95-252(d). The employer shall **retain written documentation** outlining any utilized selection process. An employer whose employees are represented by a collective bargaining representative must utilize either subsection 8, 9, or 10 for committee selection purposes. Any non-management employees who choose not to participate in the collective bargaining process are still considered to be represented by the collective bargaining representative for purposes of this Rule for committee selection purposes. *[Reference Section 07A .0604—Selection of Safety Committees, Section 07A .0605—Safety and Health Committee Requirements, and N.C. 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.) *[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.

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

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

Programs, Plans, and Procedures

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

1904.32(a)(1)—*Review that year's **OSHA 300 Log** to verify that it contains accurate entries for all recordable injuries and illnesses that occurred during the year, and make any additions or corrections necessary to ensure its accuracy.*

1904.32(a)(3)—*After you have verified the accuracy of the **log**, create an **annual summary** of injuries and illnesses recorded on the **log**.*

1904.32(a)(4)—*Certify the summary, and*

1904.32(a)(5)—*Post the summary.*

1904.35(b)(1)(i)—You must establish a *reasonable procedure* for employees to report work-related injuries and illnesses promptly and accurately. A *procedure is not reasonable* if it would deter or discourage a reasonable employee from *accurately reporting* a workplace injury or illness.

1904.35(b)(1)(ii)—You must *inform each employee of your procedure* for reporting work-related injuries and illnesses.

1904.41(a)(1)—*Annual electronic submission of **OSHA Form 300A Summary of Work Related Injuries and Illnesses** by establishments with 250 or more employees. If your establishment had 250 or more employees at any time during the previous calendar year, and this part requires your establishment to keep **records**, then you must *electronically submit* information from **OSHA Form 300A Summary of Work Related Injuries and Illnesses to OSHA** or OSHA's designee. You *must submit* the information once a year, no later than the date listed in *paragraph (c)* of this section of the year after the calendar year covered by the **form** (for example, 2019 for the 2018 form).*

1904.41(a)(2)—*Annual electronic submission of **OSHA Form 300A Summary of Work-Related Injuries and Illnesses** by establishments with 20 or more employees but fewer than 250 employees in designated industries. If your establishment had 20 or more employees but fewer than 250 employees at any time during the previous calendar year, and your establishment is classified in an industry listed in *appendix A* to subpart E of this part, then you must *electronically submit* information from **OSHA Form 300A Summary of Work-Related Injuries and Illnesses to OSHA** or OSHA's designee. You *must submit the information once a year*, no later than the date listed in *paragraph (c)* of this section of the year after the calendar year covered by the **form**.*

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 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*. [Reference 1904.4(a) for specific requirements.]

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

1904.34—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.

1904.41(a)(1)—Annual electronic submission of **OSHA Form 300A Summary of Work Related Injuries and Illnesses** by establishments with 250 or more employees. If your establishment had 250 or more employees at any time during the previous calendar year, and this part requires your establishment to keep **records**, then you must *electronically submit* information from **OSHA Form 300A Summary of Work Related Injuries and Illnesses to OSHA** or OSHA's designee. You *must submit* the information once a year, no later than the date listed in *paragraph (c)* of this section of the year after the calendar year covered by the **form** (for example, 2019 for the **2018 form**).

1904.41(a)(2)—Annual electronic submission of **OSHA Form 300A Summary of Work-Related Injuries and Illnesses** by establishments with 20 or more employees but fewer than 250 employees in designated industries. If your establishment had 20 or more employees but fewer than 250 employees at any time during the previous calendar year, and your establishment is classified in an industry listed in **appendix A** to subpart E of this part, then you must *electronically submit information from OSHA Form 300A Summary of Work-Related Injuries and Illnesses* to OSHA or OSHA's designee. *You must submit the information once a year, no later than the date listed in paragraph (c) of this section of the year after the calendar year covered by the form.*

Certification

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

1904.32(a)(4)—*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 verify that all recordable injuries and illnesses that occurred during the year are entered and the that log and its entries are accurate.*

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

Training and Communications

1904.2(a)(1)—Partial exemption for establishments in certain industries. Basic requirement. If your business establishment is classified in a specific industry group listed in **appendix A** to this subpart, you do not need to keep **OSHA injury and illness records** unless the government asks you to keep the **records** under 1904.41—*Electronic Submission of Injury and Illness Records to OSHA* or 1904.42—*Requests From the Bureau of Labor Statistics for Data*. 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)—You must *inform each employee of how he or she is to report* a work-related injury or illness to you.

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

1904.35(b)(1)(ii)—You must *inform each employee of your procedure* for reporting work-related injuries and illnesses.

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

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

1904.39(a)(3)—*Reporting fatalities, hospitalizations, amputations, and losses of an eye as a result of work-related incidents to OSHA. Basic requirement. You must report the fatality, inpatient hospitalization, amputation, or loss of an eye using one of the following methods. [Reference 1904.39(a)(3) for specific methods.]*

1904.39(b)(5)—*Reporting Fatalities and Multiple Hospitalization Incidents to OSHA. Do I have to report a fatality caused by a heart attack at work? Yes, your local OSHA Area Office director will decide whether to investigate the incident, depending on the circumstances of the heart attack.*

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

1904.40(a)—Basic requirement. When an authorized government representative *requests the records* you keep under *Part 1904*, you must provide accurate **records or copies** thereof, *within four (4) business hours* of the request.

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

Signs, Markings and Tags

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

1904.32(a)(5)—*Post the summary.*

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

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

SECTION 4

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. [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, Plans and Procedures—safe practices manual
- Recordkeeping—safe practices manual

Programs, Plans and Procedures

1910.420(a)—General. The employer *shall develop and maintain a safe practices manual which shall be made available at the dive location to each dive team member. [Reference paragraph (a)(1) for specific information.]*

Recordkeeping

1910.420(a)—General. The employer *shall develop and maintain a **safe practices manual** which shall be made **available** at the dive location to each dive team member. [Reference paragraph (a)(1) for specific information.]*

1910.421—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, Plans and Procedures—emergency list on-site, first aid handbook on site, reporting procedures
- Inspections and Tests—assessment, inspection before dive
- Recordkeeping—first aid handbook
- Training and Communications—briefing prior to dive
- Qualified Person—first aid kit
- Signs, Markings and Tags—flag displayed

Programs, Plans 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.*

Inspections and Tests

1910.421(d)—*Planning and assessment. Planning of a diving operation shall include an assessment of the safety and health aspects. [Reference paragraph (d) for specific information.]*

1910.421(g)—*Equipment inspection. The breathing gas supply system including reserve breathing gas supplies, masks, helmets, thermal protection, and bell handling mechanism (when appropriate) shall be inspected prior to each dive. [Reference paragraph (g) for specific information.]*

Recordkeeping

1910.421(c)(1)—*A first aid kit appropriate for the diving operation and **approved** by a **physician** shall be **available** at the dive location.*

1910.421(c)(3)—In addition to any other first aid supplies, an American Red Cross standard **first aid handbook** or equivalent, and a bag-type manual resuscitator with transparent mask and tubing shall be **available** at the dive location.

Training and Communications

1910.421(f)(1)—*Dive team members shall be briefed. [Reference paragraph (f) for specific information.]*

Qualified Person

1910.421(c)(1)—A first aid kit appropriate for the diving operation and **approved** by a **physician** shall be **available** at the dive location.

Signs, Markings and Tags

1910.421(h)—Warning signal. When diving from surfaces other than vessels in areas capable of supporting marine traffic, a rigid replica of the international code flag “A” at least one meter in height shall be displayed at the dive location in a manner which allows all-round visibility, and shall be illuminated during night diving operations.

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

- Programs, Plans and Procedures—investigate each incident, written evaluations
- Recordkeeping—records
- Training and Communications—employee instructions

Programs, Plans and Procedures

1910.423(e)(1)—Investigate and evaluate each incident of decompression sickness based on the **recorded information**, consideration of the past performance of decompression table used, and individual susceptibility. [Reference paragraph (e) for specific information.]

1910.423(e)(3)—Prepare a **written evaluation** of the decompression procedure assessment, including any corrective action taken, within 45 days of the incident of decompression sickness. [Reference paragraph (e) for specific information.]

Recordkeeping

1910.423(d)(1)—Information shall be **recorded** and **maintained** for each diving operation. [Reference paragraph (d) for specific information.]

1910.423(d)(2)—For each dive outside the no-decompression limits, deeper than 100 fsw or using mixed gas, **additional information** shall be **recorded** and **maintained**. [Reference paragraph (d) for additional information.]

1910.423(d)(3)—For each dive in which decompression sickness is suspected or symptoms are evident, **additional information** shall be **recorded** and **maintained**. [Reference paragraph (d) for specific information.]

1910.423(e)(1)—Investigate and evaluate each incident of decompression sickness based on the **recorded information**, consideration of the past performance of decompression table used, and individual susceptibility. [Reference paragraph for specific information.]

1910.423(e)(3)—Prepare a **written evaluation** of the decompression procedure assessment, including any corrective action taken, within 45 days of the incident of decompression sickness. [Reference paragraph (e) for specific information.]

Training and Communications

1910.423(b)(1)(ii)—*Instruct the diver to report any physical problems or adverse physiological effects including symptoms of decompression sickness.*

1910.423(b)(1)(iii)—*Advise the diver of the location of a decompression chamber which is ready for use.*

1910.423(b)(2)—For any dive outside the no-decompression limits, deeper than 100 fsw or using mixed gas as a breathing mixture, the employer *shall instruct* the diver to remain awake and in the vicinity of the decompression chamber which is at the dive location for at least one hour after the dive (including decompression or treatment as appropriate).

1910.430—Equipment

Scope/Application: *This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.*

Exception: *This standard does not apply to any diving operation: performed solely for instructional purposes, using open-circuit, compressed-air SCUBA and conducted within the no-decompression limits; performed solely for search, rescue, or related public safety purposes by or under the control of a governmental agency; or governed by 45 CFR Part 46 [Protection of Human Subjects, U.S. Department of Health and Human Services] or equivalent rules or regulations established by another federal agency, which regulate research, development, or related purposes involving human subjects.*

STANDARD HIGHLIGHTS

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

Programs, Plans 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.*

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.

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

- Inspections and Tests—performance of test and inspections
- Recordkeeping—test, inspections
- Certification—**certified** industrial hygienist
- Training and Communications—competent person
- Competent Person—perform test and inspections
- Qualified Person—marine chemist or **certified** industrial hygienist
- Signs, Markings and Tags—records posted

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. [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*.

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)(iii)—The **roster** shall contain specific information. [Reference paragraph (b)(2)(iii) for more information.]

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

1915.7(c)—The employer shall ensure that each designated competent person has specific skills and knowledge. [Reference paragraph (c) for more information.]

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

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.

Certification

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.

Training and Communications

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

1915.7(c)—The employer shall ensure that *each designated competent person has skills and knowledge*. [Reference paragraph (c) for specific skills and knowledge information.]

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

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

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.

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

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 confined spaces, enclosed spaces and other dangerous atmospheres.

STANDARD HIGHLIGHTS

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

Programs, Plans 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.

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. *[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.”*

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.

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.

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*. [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. [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.

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;*

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.*

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. *[Reference paragraph (a)(1) 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.*

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.”*

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.*

1915.13—Cleaning and Other Cold Work

Scope/Application: *This section applies to manual cleaning and other cold work in shipyard employment.*

STANDARD HIGHLIGHTS

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

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. [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.

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.”

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.

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. [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;.

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. [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. [Reference paragraph (b)(10) for additional provisions.]

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 hot work conducted in shipyard employment.*

STANDARD HIGHLIGHTS

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

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”*. *[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.

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.

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”*: [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.

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.

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*. [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.

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”*: [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. *[Reference paragraph (b)(1) for additional requirements.]*

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.

1915.15—Maintenance of Safe Conditions

Scope/Application: *This section applies to maintaining safe conditions in shipyard employment.*

STANDARD HIGHLIGHTS

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

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 certificate*. 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.

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].

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].

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.

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.

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].

1915.16—Warning Signs and Labels

Scope/Application: *This section applies to warning signs and labels used in 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 toxic cleaning solvents used in 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 mechanical paint removers used in 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 painting in 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 flammable liquids used in 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 ventilation and other protection during welding, cutting and heating.*

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 during welding, cutting and heating in way of preservative coatings.*

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 welding, cutting and heating of hollow metal containers and structures.*

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 welding, cutting and heating.*

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 arc welding and cutting in 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. [Reference paragraph (d) for further requirements].

1915.57—Uses of Fissionable Material in Ship Repairing and Shipbuilding

Scope/Application: *This section applies to fissionable materials in ship repairing and shipbuilding.*

STANDARD HIGHLIGHTS

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

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.*

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.*

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 scaffolds and staging in shipyard employment.*

STANDARD HIGHLIGHTS

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

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.

Competent Person

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

1915.72—Ladders

Scope/Application: *This section applies to the use of ladders in shipyard employment.*

STANDARD HIGHLIGHTS

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

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 accessing vessels.*

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 accessing cargo spaces and confined spaces.*

STANDARD HIGHLIGHTS

- Inspections and Tests—fixed ladder
- Training and Communications—informing winchman or crane signalman
- Qualified Person—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.*

Qualified Person

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 housekeeping in shipyard employment.*

STANDARD HIGHLIGHTS

- Programs, Plans and Procedures—housekeeping practices

Programs, Plans 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 lighting in 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 utilities in shipyard employment.*

STANDARD HIGHLIGHTS

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

Recordkeeping

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.

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.*

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.*

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*.

1915.84—Working Alone

Scope/Application: *This section applies to working alone in 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 medical services and first aid in shipyard employment.*

STANDARD HIGHLIGHTS

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

Programs, Plans 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.

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*.

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.

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.

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).

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.

1915.88—Sanitation

Scope/Application: This section applies to sanitation in shipyard employment.

STANDARD HIGHLIGHTS

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

Programs, Plans 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 sewer 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***.

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.”

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

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

STANDARD HIGHLIGHTS

- Programs, Plans and Procedures—locks and tags-plus systems
- Inspections and Tests—verifying and testing equipment
- Recordkeeping—maintaining logs
- Training and Communications—use of locks and tags
- Qualified Person—lockout/tags-plus coordinator
- Signs, Markings and Tags—affixing and removing tags
- Other—Appendix A

Programs, Plans 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(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(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. *[Reference paragraph (d)(1) for the specific procedure requirements.]*

Note 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. *[Reference paragraph (d)(2) for the specific conditions.]*

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(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. [Reference paragraph (h) for the specific sequence.]*

Note 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)(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: *[Reference paragraph (i)(3) for more information.]*

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)(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(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**.*

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(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)(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(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(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. [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. [Reference paragraph (c)(7)(iv) for the specific information.]

Note 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*. [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.*

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].

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* [Reference paragraph (e)(1)(i) for further requirements]:

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

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*. [Reference paragraph (h) for the specific sequence to be followed.]

Note 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.

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)(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. [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*. [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*. [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*. [Reference paragraph (o)(5) for training requirements for the coordinator.]

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

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. [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.

Qualified Person

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. [Reference paragraph (c)(7)(iii) for the specific requirements.]

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(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.

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)(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.

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. *[Reference paragraph (h) for the specific sequence.]*

Note 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.

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. [Reference paragraph (n)(3) for specific requirements.]

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

Scope/Application: This rule provides the safety color codes used 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)(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.*

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 DOT markings, placards, and labels in 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 motor vehicle safety equipment, operation and maintenance in shipyard employment.*

STANDARD HIGHLIGHTS

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

Programs, Plans and Procedures

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. [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.*

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.*

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, Plans and Procedures—training program
- Inspections and Tests—visual inspections each day, reinspections
- Recordkeeping—certification
- Certification—manufacturer
- Training and Communications—program, evaluate abilities, initial training
- Qualified Person—**certified**
- Signs, Markings and Tags—marked and tagged

Programs, Plans 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.

Inspections and Tests

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.

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.

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.

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.

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.

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.

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

1915.111—Inspection

Scope/Application: *This section applies to inspecting gear and equipment for rigging and materials handling in 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 ropes, chains and slings used in 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)(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*.

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.

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.

1915.113—Shackles and Hooks

Scope/Application: *This section applies to shackles and hooks used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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.

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*.

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*.

1915.114—Chain Falls and Pull-Lifts

Scope/Application: *This section applies to chain falls and pull-lifts in 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 hoisting and hauling equipment used in shipyard employment.*

STANDARD HIGHLIGHTS

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

Inspections and Tests

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

Certification

1915.115(a)(1)—Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wingwalls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, *shall be tested* and **certificated** 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 wingwalls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, *shall be tested* and **certificated** 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.

1915.116—Use of Gear

Scope/Application: *This section applies to gear used in 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 qualification of operators when hoisting gear in 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

Scope/Application: *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

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

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.

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.

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. [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.*

29 CFR 1915 Subpart H—Tools and Related Equipment

1915.131—General Precautions

Scope/Application: *This section applies to general precautions for tools and related equipment used in 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 portable electric tools used in shipyard employment.*

STANDARD HIGHLIGHTS

- Inspections and Tests—checking grounding circuits
- Training and Communications—notifying vessel officer
- Qualified Person—officer-in-charge

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.

Qualified Person

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 abrasive wheels used in 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 powder actuated fastening tools used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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.

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*.

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. [*Reference paragraph (c) for more information.*]

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

Scope/Application: *This section applies to internal combustion engines used in 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 personal protective equipment used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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.

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. [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.*

1915.153—Eye and Face Protection

Scope/Application: *This section applies to eye and face protection used in 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, Plans and Procedures—respirator program, annual review, fit tests
- Inspections and Tests—inspections before use and monthly, evaluations
- Recordkeeping—retention requirements, records
- Certification—respirator inspections
- Training and Communications—initial and annual training, Appendix D
- Medical Surveillance—initial evaluation, recommendations, questionnaires
- Qualified Person—designated program administrator
- Signs, Markings and Tags—tags, labels, color-coding

Programs, Plans and Procedures

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

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

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

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

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

1910.134(f)(2)—The employer *shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use* of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and *at least annually thereafter*.

1910.134(f)(3)—The employer *shall conduct an additional fit test whenever* the employee reports, or the employer, **PLHCP [physician or other licensed health care professional]**, supervisor, or *program administrator makes visual observations of*, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

Inspections and Tests

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

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

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

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

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

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

Recordkeeping

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

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

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

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

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

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

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

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

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

Certification

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

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

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

Training and Communications

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

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

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

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

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

1910.134(k)(5)(iii)—*Any other situation arises in which retraining appears necessary* to ensure safe respirator use.

1910.134(k)(6)—The basic advisory information on respirators, as presented in *Appendix D—Information for Employees Using Respirators When Not Required Under Standard* of this section, shall be provided by the employer in any *written* or oral *format*, to employees who wear respirators when such use is not required by this section or by the employer.

Medical Surveillance

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

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

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

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

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.*

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.*

1915.155—Head Protection

Scope/Application: *This section applies to head protection used in 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 foot protection used in 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 lifesaving equipment used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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*.

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.

1915.159—Personal Fall Arrest Systems (PFAS)

Scope/Application: *This section applies to personal fall arrest systems used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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.*

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.*

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)(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.

1915.160—Positioning Device Systems

Scope/Application: *This section applies to positioning device systems used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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.

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.

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.

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

1915.162—Ship’s Boilers

Scope/Application: *This section applies to ship’s boilers used in 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 ship’s piping systems used in 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 ship's propulsion machinery used in 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 portable air receivers and other unfired pressure vessels used in shipyard employment.*

STANDARD HIGHLIGHTS

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

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*.

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*.

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*.

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*.

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*.

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*.

29 CFR 1915 Subpart L—Electrical Machinery

1915.181—Electrical Circuits and Distribution Boards

Scope/Application: *This section applies to electrical circuits and distribution boards used in 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 fire protection applicable to shipyard employment.*

STANDARD HIGHLIGHTS

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

Programs, Plans 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.

1915.501(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.

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.

1915.502—Fire Safety Plan

Scope/Application: *This section applies to fire safety plans for shipyards.*

STANDARD HIGHLIGHTS

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

Programs, Plans 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. *[Reference paragraph (c) for more information.]*

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***.

Recordkeeping

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(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***.

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***.

1915.503—Precautions for Hot Work

Scope/Application: *This section applies to hot work conducted at shipyards.*

STANDARD HIGHLIGHTS

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

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.

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 *Shipyard Competent Person's log* is used for authorization.

Certification

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.

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 *Shipyard 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 *Shipyard Competent Person's log* is used for authorization.

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.

1915.504—Fire Watches

Scope/Application: *This section applies to fire watches when required in shipyard employment.*

STANDARD HIGHLIGHTS

- Programs, Plans and Procedures—written policy
- Inspections and Tests—competent person log
- Recordkeeping—posted fire watch, written policy
- Training and Communications—fire watch training
- Competent Person—shipyard competent person
- Qualified Person—marine chemist, coast guard authorized person

Programs, Plans 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. *[Reference paragraph (a) for specific requirements for the 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.

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. *[Reference paragraph (a) for specific requirements for the policy.]*

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].

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. [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. [Reference paragraph (b) for specific requirements.]*

1915.505—Fire Response

Scope/Application: *This section applies to fire responses at shipyards.*

STANDARD HIGHLIGHTS

- Programs, Plans and Procedures—written policy
- Inspections and Tests—inspections
- Recordkeeping—medical records
- Certification—NIOSH
- Training and Communications—information provided
- Medical Surveillance—shipyard competent person
- Other—marine chemist, coast guard authorized person

Programs, Plans and Procedures

1915.505(a)—The employer must:

1915.505(a)(2)—Create, ***maintain***, and update a **written policy**. [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*. [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*. [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*. [Reference paragraph (b)(3) for specific requirements for the policy.]

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.

Recordkeeping

1915.505(a)—The employer must:

1915.505(a)(2)—Create, ***maintain***, and update a **written 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*. [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*. [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*. [Reference paragraph (b)(3) for specific requirements for the 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].

Certification

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.

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.

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*].

Other

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]*.

1915.506—Hazards of Fixed Extinguishing Systems on Board

Vessels and Vessel Sections

Scope/Application: *This section applies to vessels and vessel sections used in 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. [*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 fire protection systems at shipyards.*

STANDARD HIGHLIGHTS

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

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(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)(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. [Reference paragraph (d) for specific information.]

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*.

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.

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. [Reference paragraph (d) for specific information.]

1915.508—Training

Scope/Application: *This section applies to training for fire fighters at shipyards.*

STANDARD HIGHLIGHTS

- Programs, Plans and Procedures—written policies and procedures
- Recordkeeping—training records
- Training and Communications—initial training, written training policy
- Qualified Person—qualified instructors
- Other—consensus standards

Programs, Plans 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.

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.

Training and Communication

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. [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. [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. [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. [Reference paragraph (e)(3) for the specific training requirements.]

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

- Programs, Plans and Procedures—work controls, respirator program, medical surveillance program, hazard communication program
- Inspections and Tests—measuring PELs
- Recordkeeping—retention requirements
- Certification—work practices and engineering controls
- Training and Communications—informed of monitoring results
- Exposure Monitoring—airborne concentrations
- Medical Surveillance—program, initial, annual, and termination examinations, written opinions, information provided to the physician
- Competent Person—cutting machines
- Qualified Person—**certified** industrial hygienist
- Signs, Markings and Tags—regulated areas, posted signs, labels

Programs, Plans 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, Dissassembly, 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, Dissassembly, 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)(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.***

Inspections and Tests

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(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)(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)(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(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.*

Recordkeeping

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(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.*

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, Dissassembly, 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, Dissassembly, Repair and Assembly]* to this section.

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(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)(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)(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 and additional information. [*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 I Requirements]* is satisfied when the specific control methods in *paragraph (g)(5) [Specific Control Systems for Class I 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. [Reference paragraph (g)(5)(v) for more information.]*

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. *[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. [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. [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. *[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.*

Exposure Monitoring

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)(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 I Requirements]* is satisfied when the specific control methods in *paragraph (g)(5) [Specific Control Systems for Class I 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]*.

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*. [*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. [*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*. [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. [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. [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.

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. [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. [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**.

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 include the following: 4-Nitrobiphenyl (1915.1003), alpha-Naphthylamine (1915.1004), methyl chloromethyl ether (1915.1006), 3,3'-Dichlorobenzidine (and its salts) (1915.1007), bis-Chloromethyl ether (1915.1008), beta-Naphthylamine (1915.1009), Benzidine (1915.1010), 4-Aminodiphenyl (1915.1011), Ethyleneimine (1915.1012), beta-Propiolactone (1915.1013), 2-Acetylaminofluorene (1915.1014), 4-Dimethylaminoazo-benzene (1915.1015), and N-Nitrosodimethylamine (1915.1016) and are identical to the requirements in 1910.1003.*

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, Plans and Procedures—respirator program, medical surveillance program, emergency procedures, hazard communication program
- Recordkeeping—records
- Training and Communications—initial and annual training
- Medical Surveillance—program, initial, annual, and emergency examinations, written opinion
- Qualified Person—physician
- Signs, Markings and Tags—posted signs, labels, posted emergency procedures

Programs, Plans 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**. [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.

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. [Reference paragraph (g) for specific information.]

Training and Communications

1910.1003(e)(1)(iii)—Employers shall include the carcinogens listed in *paragraph (e)(1)(iv) [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** [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. [Reference paragraph (g) for specific information.]

Medical Surveillance

1910.1003(d)(2)(iii)—Special medical surveillance by a **physician** shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency.

1910.1003(g)—Medical surveillance. At no cost to the employee, a **program of medical surveillance** shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees.

1910.1003(g)(1)(i)—Before an employee is assigned to enter a regulated area, a preassignment physical examination by a **physician** shall be provided. The examination shall include the personal history of the employee, family and occupational background, including genetic and environmental factors.

1910.1003(g)(1)(ii)—Authorized employees shall be provided periodic physical examinations, not less often than annually, following the preassignment examination.

1910.1003(g)(2)(iii)—Any **physician** who conducts a medical examination required by this paragraph shall furnish to the employer a **statement** of the employee's suitability for employment in the specific exposure. [Reference paragraph (g) for specific information.]

Qualified Person

1910.1003(d)(2)(iii)—*Special medical surveillance by a **physician** shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency.*

1910.1003(g)—*Medical surveillance. At no cost to the employee, a **program of medical surveillance** shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees.*

1910.1003(g)(1)(i)—*Before an employee is assigned to enter a regulated area, a preassignment physical examination by a **physician** shall be provided. The examination shall include the personal history of the employee, family and occupational background, including genetic and environmental factors.*

1910.1003(g)(1)(ii)—*Authorized employees shall be provided periodic physical examinations, not less often than annually, following the preassignment examination.*

1910.1003(g)(2)(iii)—*Any **physician** who conducts a medical examination required by this paragraph shall furnish to the employer a **statement** of the employee's suitability for employment in the specific exposure. [Reference paragraph (g) for specific information.]*

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. [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.

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, Plans and Procedures—exposure monitoring program, respirator program, emergency plan, medical surveillance program, work practice controls, annual updates, hazard communication program
- Recordkeeping—retention requirements, medical records, safety data sheets
- Training and Communications—initially, annually
- Exposure Monitoring—program, monitoring quarterly, measurements, results posted
- Medical Surveillance—program, examinations, written opinions
- Qualified Person—physician
- Signs, Markings and Tags—labels, posting signs

Programs, Plans 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. [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.

Recordkeeping

1910.1017(i)—Emergency situations. A **written operational plan** for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the **plan** shall be implemented in the event of an emergency.

1910.1017(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.

Training and Communications

1910.1017(j)—Training. Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a **program** relating to the hazards of vinyl chloride and precautions for its safe use. [Reference paragraph (j) for specific information.]

1910.1017(j)(1)(ix)—A review of this **standard** at the employee's first **training and indoctrination program**, and annually thereafter.

1910.1017(k)(4)—A **statement** of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining **physician** promptly after any examination. A **copy** of the **physician's statement** shall be provided each employee. [Reference paragraph (k) for specific information.]

1910.1017(n)—Employee notification of monitoring **results**. The employer must, within 15 working days after the **receipt** of the **results** of any monitoring performed under this section, **notify** each affected employee of these **results** and the steps being taken to reduce exposures within the permissible exposure limit either individually in **writing** or by **posting the results** in an appropriate location that is accessible to affected employees.

Exposure Monitoring

1910.1017(d)(1)—A **program of initial monitoring and measurement** shall be undertaken in each establishment to determine if there is any employee exposed, without regard to the use of respirators, in excess of the action level.

1910.1017(d)(2)—Where a determination conducted under paragraph (d)(1) [Monitoring] of this section shows any employee exposures, without regard to the use of respirators, in excess of the action level, a **program** for determining exposures for each such employee shall be established. Such a **program**:

1910.1017(d)(2)(i)—Must be repeated at least quarterly for any employee exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

1910.1017(d)(2)(ii)—Must be repeated not less than every 6 months for any employee exposed without regard to the use of respirators, at or above the action level.

1910.1017(n)—Employee notification of **monitoring results**. The employer must, within 15 working days after the **receipt** of the **results** of any monitoring performed under this section, **notify** each affected employee of these **results** and the steps being taken to reduce exposures within the permissible exposure limit either individually in **writing** or by **posting the results** in an appropriate location that is accessible to affected employees.

Medical Surveillance

1910.1017(k)—*Medical surveillance. A **program of medical surveillance** shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The **program** shall provide each such employee with an opportunity for **examinations and tests** in accordance with this paragraph. All medical examinations and **procedures** shall be performed by or under the **supervision of a licensed physician**, and shall be provided without cost to the employee.*

1910.1017(k)(2)—*Examinations must be provided in accordance with this paragraph at least annually.*

1910.1017(k)(2)(i)—*Every 6 months for each employee who has been employed in vinyl chloride or polyvinyl chloride manufacturing for 10 years or longer.*

1910.1017(k)(2)(ii)—*Annually for all other employees.*

1910.1017(k)(3)—*Each employee exposed to an emergency shall be afforded appropriate medical surveillance.*

1910.1017(k)(4)—*A **statement** of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be **obtained** from the examining **physician** promptly after any examination. A **copy of the physician's statement** shall be provided each employee. [Reference paragraph (k) for specific information.]*

1910.1017(k)(7)—*If the examining **physician** determines that **alternative medical examinations to those required by paragraph (k)(1) [Medical Surveillance]** of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of **paragraph (k)(1) [Medical Surveillance]** of this section, if the employer obtains a **statement** from the examining **physician** setting forth the alternative examinations and the rationale for substitution. This **statement** shall be **available** upon request for examination and **copying** to authorized representatives of the Assistant Secretary and the Director.*

Qualified Person

1910.1017(k)—*Medical surveillance. A **program of medical surveillance** shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The **program** shall provide each such employee with an opportunity for **examinations and tests** in accordance with this paragraph. All medical examinations and **procedures** shall be performed by or under the **supervision of a licensed physician**, and shall be provided without cost to the employee.*

1910.1017(k)(4)—*A **statement** of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining **physician** promptly after any examination. A **copy of the physician's statement** shall be provided each employee.*

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 [Training]** of this section.*

1910.1017(l)(2)(i)—*The employer shall **post** entrances to regulated areas with legible **signs** bearing a legend. [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. *[Reference paragraph (l)(3)(i) for specific information.]*

1910.1017(l)(5)—Containers of vinyl chloride shall be legibly **labeled**.

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

- Programs, Plans and Procedures—compliance program, respirator program, training program, housekeeping and maintenance plan, medical surveillance program, hazard communication program
- Recordkeeping—retention requirements, safety data sheets
- Training and Communications—program, initial and annual training
- Exposure Monitoring—initially, quarterly and 6 month monitoring, written results posted
- Medical Surveillance—initial, examinations, written opinions
- Qualified Person—physician
- Signs, Markings and Tags—posted signs, labels

Programs, Plans 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.

Recordkeeping

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(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 [Recordkeeping] of this section to the Assistant Secretary and the Director for examination and **copying**.

1910.1018(q)(3)(ii)—**Records** required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a)-(e) and (g)-(i) [Access to Employee Exposure and Medical Records].

Training and Communications

1910.1018(e)(5)(i)—The employer must, within 15 working days after the **receipt** of the **results** of any monitoring performed under this section, notify each affected employee of these **results** either individually in **writing** or by **posting the results** in an appropriate location that is accessible to affected employees.

1910.1018(e)(5)(ii)—Whenever the **results** indicate that the representative employee exposure exceeds the permissible exposure limit, the employer shall include in the **written notice** a **statement** that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

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**. [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.

Exposure Monitoring

1910.1018(e)(2)—*Initial monitoring.* Each employer who has a workplace or work operation covered by this standard *shall monitor each such workplace and work operation* to accurately determine the airborne concentration of inorganic arsenic to which employees may be exposed.

1910.1018(e)(3)(ii)—If the *initial monitoring*, required by this section, or subsequent monitoring reveals employee exposure to be above the permissible exposure limit, the employer *shall repeat monitoring at least quarterly.*

1910.1018(e)(3)(iii)—If the *initial monitoring*, required by this section, or subsequent monitoring reveals employee exposure to be above the action level and below the permissible exposure limit the employer *shall repeat monitoring at least every six months.*

1910.1018(e)(3)(iv)—The employer *shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven (7) days apart, are below the action level* at which time the employer may discontinue monitoring for that employee until such time as any of the events in paragraph (e)(4) [Additional Monitoring] of this section occur.

1910.1018(e)(4)—Additional *monitoring.* Whenever there has been a production, process, control or personal change which may result in new or additional exposure to inorganic arsenic, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to inorganic arsenic, *additional monitoring which complies with paragraph (e) [Exposure Monitoring] of this section shall be conducted.*

1910.1018(e)(5)(i)—The employer *must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.*

1910.1018(e)(5)(ii)—Whenever the **results** indicate that the representative employee exposure exceeds the permissible exposure limit, the employer *shall include in the written notice a statement* that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

Medical Surveillance

1910.1018(n)(1)(i)—Employees covered. The employer *shall institute a medical surveillance program.*

1910.1018(n)(2)—*Initial examinations.* By December 1, 1978, *for employees initially covered by the medical provisions of this section, or thereafter at the time of initial assignment to an area where the employee is likely to be exposed over the action level at least 30 days per year, the employer shall provide each affected employee an opportunity for a medical examination.*

1910.1018(n)(3)(i)—*Examinations must be provided in accordance with this paragraph at least annually.*

1910.1018(n)(3)(ii)—Whenever a covered employee has not taken the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii) [Initial Examinations] of this section *within six (6) months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.*

1910.1018(n)(5)—**Information provided to the physician.** The employer *shall provide information to the examining physician.* [Reference paragraph (n)(5) for specific information.]

1910.1018(n)(6)(i)—The employer *shall obtain a written opinion from the examining physician.* [Reference paragraph (n)(6) for specific information.]

1910.1018(n)(6)(iii)—The employer *shall provide a copy of the written opinion* to the affected employee.

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**.

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. [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**. [Reference paragraph (p)(2)(i) for specific information.]

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.

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, safety data sheets
- Training and Communications—inform employees
- Qualified Person—authorized employee, physician

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. [Reference **Safety data sheets** must be **kept** for those chemicals currently in use that are effected 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.* [Reference paragraph (g)(1) for specific information.]

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

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

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

Training and Communications

1910.1020(e)(2)(ii)(D)—Whenever an employee requests access to his or her employee **medical records**, and a **physician** representing the employer believes that direct employee access to information contained in the records regarding a specific diagnosis of a terminal illness or a psychiatric condition could be detrimental to the employee's health, *the employer may inform the employee* that access will only be provided to a designated representative of the employee having specific **written consent**, and deny the employee's request for direct access to this information only. Where a designated representative with specific **written consent** requests access to information so withheld, the employer shall assure the access of the designated representative to this information, even when it is known that the designated representative will give the information to the employee.

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

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

Qualified Person

1910.1020(e)(2)(ii)(C)—Whenever access to employee **medical records** is requested, a **physician** representing the employer may recommend that the employee or designated representative:

1910.1020(e)(2)(ii)(C)(1)—Consult with the **physician** for the purposes of reviewing and discussing the **records** requested,

1910.1020(e)(2)(ii)(C)(2)—Accept a summary of material facts and opinions in lieu of the **records** requested, or

1910.1020(e)(2)(ii)(C)(3)—Accept release of the requested **records** only to a **physician** or other designated representative.

1910.1020(e)(2)(ii)(D)—Whenever an *employee requests access to his or her employee **medical records**, and a physician* representing the employer believes that direct employee access to information contained in the records regarding a specific diagnosis of a terminal illness or a psychiatric condition could be detrimental to the employee’s health, *the employer may inform the employee* that access will only be provided to a designated representative of the employee having specific **written consent**, and deny the employee’s request for direct access to this information only. Where a designated representative with specific **written consent** requests access to information so withheld, the employer shall assure the access of the designated representative to this information, even when it is known that the designated representative will give the information to the employee.

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, Plans and Procedures—compliance program, annual review, respirator program, medical surveillance program, training program, hazard communication program
- Recordkeeping—records, retention requirements, safety data sheets
- Training and Communications—instructions, inform, training initially and annually
- 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
- Qualified Person—physician
- Signs, Markings and Tags—posting

Programs, Plans 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**. [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.

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(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(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.* [Reference paragraph (j)(3) 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(n)(1)(i)—The employer *shall establish and maintain an accurate record* of all monitoring required in *paragraph (d) [Exposure Monitoring]* of this section. [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. [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. [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.*

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. [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**. [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**. [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.*

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. [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*. [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**. [Reference paragraph (j)(3) for specific information.]

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**.

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. [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. [Reference Reference paragraph (m)(2)(i) for specific 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

- Programs, Plans and Procedures—work controls, respirator program, medical surveillance program, hazard communication program
- Recordkeeping—records, retention requirements, safety data sheets
- Training and Communications—initial training, notifications
- Exposure Monitoring—determination, initial, six months, and periodic monitoring, posted results
- Medical Surveillance—program, annual, emergency and termination examinations, written opinion, information provided to the physician
- Qualified Person—physician or other licensed health care professional [PLHCP]
- Signs, Markings and Tags—marked regulated areas, labels

Programs, Plans 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(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.

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. *[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].

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*. [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. [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*. [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].*

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.

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. [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. [Reference paragraph (i)(5)(i) for specific information.]

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**.

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.

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

- Programs, Plans and Procedures—work controls established, compliance program, respirator program, emergency action plan, medical surveillance program, hazard communication program
- Recordkeeping—records, retention requirements, safety data sheets
- Training and Communications—initial and annual training
- Exposure Monitoring—determination, initial and semi-annual monitoring, posted results
- Medical Surveillance—program, initial, annual, termination and “other” examinations, information provided to physician, hazard communication program
- Qualified Person—physician
- Signs, Markings and Tags—regulated areas established, posted signs

Programs, Plans 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.*

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(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(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)(10)(i)—The employer *shall promptly obtain a **written medical opinion** from the examining **physician** for each medical examination performed on each employee. [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].

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**. [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. [Reference paragraph (m)(4) for specific training information.]

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.

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(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.

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.** *[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. *[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.

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.

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

- Programs, Plans and Procedures—compliance program, respirator program, medical surveillance program, training program, hazard communication program
- Recordkeeping—retention requirements, records, safety data sheets
- Training and Communications—program initial and annual training
- Exposure Monitoring—determination, periodic monitoring, posted results
- Medical Surveillance—program, initial, annual and “other” examinations, written opinion
- Qualified Person—physician
- Signs, Markings and Tags—regulated area established, post signs

Programs, Plans 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.

Recordkeeping

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(i)(6)—**Information provided to the physician.** The employer shall **provide information** to the examining **physician**. [Reference paragraph (i)(6) for specific information.]

1910.1028(i)(7)(i)—For each examination under this section, the employer shall obtain and provide the employee with a **copy** of the examining **physician's written opinion** within 15 days of the examination.

1910.1028(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].

Training and Communications

1910.1028(i)(1)(iii)—The employer shall assure that persons other than **licensed physicians** who administer the pulmonary function testing required by this section shall complete a **training course** in spirometry sponsored by an appropriate **governmental, academic or professional institution**.

1910.1028(i)(6)—**Information provided to the physician.** The employer shall **provide information** to the examining **physician**. [Reference paragraph (i)(6) for specific information.]

1910.1028(i)(7)(i)—For each examination under this section, the employer shall obtain and provide the employee with a **copy** of the examining **physician's written opinion** within 15 days of the examination.

1910.1028(i)(8)(ii)—Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the **physician** in consultation with the hematologist/internist. This **decision**

shall be communicated in **writing** to the employer and employee. In the case of removal, the **physician** shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

1910.1028(i)(8)(iv)—Whenever an employee is temporarily removed from benzene exposure pursuant to *paragraph (i)(8)(i) or (i)(8)(ii) [Medical Removal Plan]* of this section, the employer shall transfer the employee to a comparable job for which the employee is qualified (*or can be trained for in a short period*) and where benzene exposures are as low as possible, but in no event higher than the action level. The employer shall maintain the employee's current wage rate, seniority and other benefits. If there is no such job available, the employer shall provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

1910.1028(i)(8)(v)—Whenever an employee is removed permanently from benzene exposure based on a **physician's** recommendation pursuant to *paragraph (i)(8)(iii) [Medical Removal Plan]* of this section, the 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. [*Reference paragraph (j)(3) for specific information.*]

Exposure Monitoring

1910.1028(e)(1)(i)—Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's average exposure to airborne benzene.

1910.1028(e)(2)(ii)—The initial monitoring required under *paragraph (e)(2)(i) [Initial Monitoring]* of this section shall be completed by 60 days after the effective date of this standard or within 30 days of the introduction of benzene into the workplace. Where the employer has monitored within one year prior to the effective date of this standard and the monitoring satisfies all other requirements of this section, the employer may rely on such earlier monitoring **results** to satisfy the requirements of *paragraph (e)(2)(i) [Initial Monitoring]* of this section.

1910.1028(e)(3)(i)—If the monitoring required by *paragraph (e)(2)(i) [Initial Monitoring]* of this section reveals employee exposure at or above the action level but at or below the TWA, the employer shall repeat such monitoring for each such employee at least every year.

1910.1028(e)(3)(ii)—If the monitoring required by *paragraph (e)(2)(i) [Initial Monitoring]* of this section reveals employee exposure above the TWA, the employer shall repeat such monitoring for each such employee at least every six (6) months.

1910.1028(e)(3)(iv)—Monitoring for the STEL shall be repeated as necessary to evaluate exposures of employees subject to short term exposures.

1910.1028(e)(5)(i)—The employer shall institute the exposure monitoring required under *paragraphs (e)(2) [Initial Monitoring]* and *(e)(3) [Periodic Monitoring and Monitoring Frequency]* of this section when there has been a change in the production, process, control equipment, personnel or work practices which may result in new or additional exposures to benzene, or when the employer has any reason to suspect a change which may result in new or additional exposures.

1910.1028(e)(5)(ii)—Whenever spills, leaks, ruptures or other breakdowns occur that may lead to employee exposure, the employer shall monitor (using area or personal sampling) after the cleanup of the spill or repair of the leak, rupture or other breakdown to ensure that exposures have returned to the level that existed prior to the incident.

1910.1028(e)(7)(i)—The employer *must, within 15 working days after the receipt of the results* of any monitoring performed under this section, *notify each affected employee of these results either individually in writing or by posting the results* in an appropriate location that is accessible to employees.

Medical Surveillance

1910.1028(i)(1)(i)—The employer *shall make available a medical surveillance program* for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; for employees who are or may be exposed to benzene at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 ppm of benzene for 30 or more days in a year prior to the effective date of the standard when employed by their current employer; and for employees involved in the tire building operations called tire building machine operators, who use solvents containing greater than 0.1 percent benzene.

1910.1028(i)(3)(i)—The employer shall provide each employee covered under *paragraph (i)(1)(i) [Medical Surveillance]* of this section with a *medical examination annually* following the previous examination.

1910.1028(i)(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.*** [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.

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.

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]*.

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

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

Programs, Plans and Procedures

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

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

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

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

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

1910.1030(d)(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**. [Reference paragraph (h)(1) for specific information.]

Recordkeeping

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

1910.1030(c)(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)(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(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 [Record-keeping—Retention and Updating].

Training and Communications

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

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

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

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

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

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

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

Exposure Monitoring

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

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

Medical Surveillance

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

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

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

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

Qualified Person

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

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

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

Signs, Markings and Tags

1910.1030(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*.

Note: *The following pertains to HIV and HBV research laboratories.*

STANDARD HIGHLIGHTS

- Programs, Plans and Procedures—written procedures, written biosafety manual
- Inspections and Tests—routine checks of vacuum lines
- Recordkeeping—certification
- Certification—biological safety cabinets **certified** annually
- Training and Communications—initial and additional training
- Signs, Marking and Tags—posted signs

Programs, Plans 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.

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*.

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)(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.

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.*

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.

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

- Programs, Plans and Procedures—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, hazard communication program
- Recordkeeping—retention requirements, records, safety data sheets
- Training and Communications—initial training
- Exposure Monitoring—initially, every 6 months, emergency, and quarterly monitoring, posted results
- Medical Surveillance—program, initial and annual examinations
- Qualified Person—physician
- Signs, Markings and Tags—regulated areas, posted signs, labels

Programs, Plans 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 none-the-less 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. [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.

Recordkeeping

1910.1044(g)(2)(i)—The employer *shall establish and implement a **written program*** to reduce employee exposures to DBCP to or below the permissible exposure limit solely by means of *engineering and work practice controls* as required by *paragraph (g) (1) [Methods of Compliance]* of this section.

1910.1044(i)(1)(i)—A **written plan for emergency situations** shall be developed for each workplace in which DBCP is present.

1910.1044(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].

Training and Communications

1910.1044(f)(5)(i)—The employer *must, within 15 working days after the receipt of the results* of any monitoring performed under this section, *notify each employee of these results either individually in writing or by posting the results* in an appropriate location that is accessible to employees.

1910.1044(m)(4)—*Information provided to the physician.* The employer shall provide the following **information** to the examining **physician**. [Reference paragraph (m)(4) for specific information.]

1910.1044(m)(5)(i)—For each examination under this section, the employer shall **obtain** and provide the employee with a **written opinion** from the examining **physician**.

1910.1044(m)(5)(ii)—The employer shall instruct the **physician** not to reveal in the **written opinion** specific findings or diagnoses unrelated to occupational exposure.

1910.1044(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.

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.

Medical Surveillance

1910.1044(i)(5)—*Medical surveillance.* For any employee exposed to DBCP in an emergency situation, the employer shall provide medical surveillance in accordance with paragraph (m)(6) [Emergency Situations] of this section.

1910.1044(m)(1)(i)—The employer *shall make available a **medical surveillance program*** for employees who work in regulated areas and employees who are subjected to DBCP exposures in an emergency situation. *[Reference paragraph for specific information.]*

1910.1044(m)(2)—*Frequency and content. At the time of initial assignment, and annually thereafter, the employer shall provide a medical examination for employees who work in regulated areas.*

1910.1044(m)(4)—***Information provided to the physician.** The employer shall provide the following **information** to the examining **physician**. [Reference paragraph (m)(4) for specific information.]*

1910.1044(m)(5)(i)—For each examination under this section, the employer *shall obtain and provide the employee with a **written opinion*** from the *examining physician*.

1910.1044(m)(6)—Emergency situations. If the employee is exposed to DBCP in *an emergency situation, the employer shall provide the employee with a sperm count test* as soon as practicable, or, if the employee has been 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.*

Qualified Person

1910.1044(m)(4)—***Information provided to the physician.** The employer shall provide the following **information** to the examining **physician**. [Reference paragraph (m)(4) for specific information.]*

1910.1044(m)(5)(i)—For each examination under this section, the employer *shall **obtain** and provide the employee with a **written opinion*** from the *examining physician*.

1910.1044(m)(5)(ii)—The employer *shall instruct the **physician** not to reveal in the **written opinion** specific findings or diagnoses unrelated to occupational exposure.*

Signs, Markings and Tags

1910.1044(e)(1)—The employer *shall establish, within each place of employment, regulated areas* wherever DBCP concentrations are in excess of the permissible exposure limit.

1910.1044(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.*

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

- Programs, Plans and Procedures—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, hazard communication program
- Inspections and Tests—signs cleaned
- Recordkeeping—retention requirements, records, safety data sheets
- Training and Communications—training program, initial and annual training
- Exposure Monitoring—initially, every 6 months, and quarterly monitoring, posted results
- Medical Surveillance—program, initial, annual, termination and “other” examinations
- Qualified Person—physician
- Signs, Markings and Tags—posted signs, labels

Programs, Plans 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. *[Reference paragraph (g) for specific information.]*

1910.1045(g)(2)(v)—The *plans* required by this paragraph *must be revised and updated at least annually* to reflect the current status of the *program*.

1910.1045(h)(2)(i)—The employer *must implement a **respiratory protection program*** in accordance with *Sec. 1910.134 [Respiratory Protection] (b) through (d) (except (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)), and (f) through (m)*, which covers each employee required by this section to use a respirator.

1910.1045(i)(1)(i)—A *written plan for emergency situations* shall be developed for each workplace where liquid AN is present. Appropriate portions of the *plan* shall be implemented in the event of an emergency.

1910.1045(n)(1)(i)—The employer *shall institute a **program of medical surveillance*** for each employee who is or will be exposed to AN at or above the action level, without regard to the use of respirators. The employer *shall provide each such employee with an opportunity for medical examinations and tests in accordance with this paragraph. [Reference paragraph (n)(1) for specific information.]*

1910.1045(o)(1)(i)—The employer *shall train each employee* exposed to AN above the action level, each employee whose exposures are maintained below the action level by *engineering and work practice controls*, and each employee subject to potential skin or eye contact with liquid AN in accordance with the requirements of this section. The employer *shall institute a **training program*** and ensure employee participation in the *program*. *[Reference paragraph (o)(1)(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.

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.

Recordkeeping

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(g)(2)(i)—The employer *shall establish and implement a **written program** to reduce employee exposures to or below the permissible exposure limits solely by means of **engineering and work practice controls**, as required by paragraph (g)(1) [Engineering and Work Practice Controls] of this section. [Reference paragraph (g) for specific information.]*

1910.1045(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)(5)—**Information provided to the physician.** *The employer shall **provide information** to the examining **physician**. [Reference paragraph (n)(5) for specific information.]*

1910.1045(n)(6)(iii)—The employer *shall provide a **copy of the written opinion** to the affected employee.*

1910.1045(p)(1)(iii)—Employers shall include AN and AN-based materials in the **hazard communication program** established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee *has access to **labels** on containers of AN and AN-based materials and to **safety data sheets**, and is trained* in accordance with the requirements of HCS and paragraph (o) [Employee Information and Training] of this section.

1910.1045(q)(1)(i)—Where the processing, use, and handling of materials made from or containing AN are exempted pursuant to paragraph (a)(2)(ii) [Scope] of this section, the employer *shall establish and **maintain** an accurate **record** of objective data reasonably relied upon in support of the exemption.*

1910.1045(q)(1)(iii)—The employer *shall **maintain this record** for the duration of the employer's reliance upon such **objective data**.*

1910.1045(q)(2)(i)—The employer *shall establish and **maintain** an accurate **record** of all monitoring required by paragraph (e) [Exposure Monitoring] of this section.*

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].*

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. [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**. [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.*

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 apart, are below the action level, and thereafter the employer may discontinue monitoring for that employee.*

1910.1045(e)(3)(iii)—If the monitoring required by this section reveals employee exposure to be in excess of the permissible exposure limits, the employer *must repeat these determinations for each such employee at least quarterly. The employer must continue these quarterly measurements until at least two consecutive measurements, taken at least seven (7) days apart, are at or below the permissible exposure limits, and thereafter the employer must monitor at least every 6 months.*

1910.1045(e)(4)—***Additional monitoring.** Whenever there has been a production, process, control, or personnel change which may result in new or additional exposures to AN, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to AN, **additional monitoring which complies with this paragraph shall be conducted.***

1910.1045(e)(5)(i)—The employer *must, within 15 working days after the **receipt** of the **results** of any monitoring performed under this section, **notify each affected employee of these results** either individually in **writing** or by **posting the results** in an appropriate location that is accessible to employees.*

Medical Surveillance

1910.1045(n)(1)(i)—The employer *shall institute a **program of medical surveillance*** for each employee who is or will be exposed to AN at or above the action level, without regard to the use of respirators. The employer *shall provide each such employee with an opportunity for medical examinations and tests in accordance with this paragraph. [Reference Reference paragraph (n) for specific information.]*

1910.1045(n)(2)—*Initial examinations. At the time of initial assignment, or upon institution of the **medical surveillance program**, the employer shall provide each affected employee an opportunity for a medical examination.*

1910.1045(n)(3)(i)—The employer *shall provide the examinations specified in paragraph (n)(2) [Initial Examinations] of this section at least annually for all employees specified in paragraph (n)(1) [Medical Surveillance] of this section.*

1910.1045(n)(3)(ii)—If an employee has not had the examination specified in paragraph (n)(2) [Initial Examinations] of this section within 6 months preceding termination of employment, the employer shall make such examination available to the employee prior to such termination.

1910.1045(n)(4)—*Additional examinations.* If the employee for any reason develops signs or symptoms which may be associated with exposure to AN, the employer *shall provide an appropriate examination and emergency medical treatment.*

1910.1045(n)(5)—*Information provided to the **physician**.* The employer shall provide **information** to the examining **physician**. [Reference paragraph (n)(5) for 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.

Qualified Person

1910.1045(n)(5)—*Information provided to the **physician**.* The employer shall **provide information** to the examining **physician**.

1910.1045(n)(6)(iii)—The employer *shall provide a **copy of the written opinion*** to the affected employee.

1910.1045(n)(6)(ii)—The employer *shall instruct the **physician*** not to reveal in the **written opinion** specific findings or diagnoses unrelated to occupational exposure to AN.

Signs, Markings and Tags

1910.1045(f)(2)—Regulated areas *shall be **demarcated*** and segregated from the rest of the workplace, in any manner that minimizes the number of persons who will be exposed to AN.

1910.1045(h)(2)(ii)(B)—A **label** *must be **attached*** to the cartridge or canister to indicate the date and time at which it is first installed on the respirator.

1910.1045(p)(1)(iii)—Employers shall include AN and AN-based materials in the **hazard communication program** *established to comply with the HCS (Sec. 1910.1200)*. Employers shall ensure that each employee *has access to **labels** on containers of AN and AN-based materials and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (o) [Employee Information and Training] of this section.*

1910.1045(p)(2)(i)—The employer *shall **post signs** to clearly indicate* all workplaces where AN concentrations exceed the permissible exposure limits. [Reference paragraph (p)(2)(i) for specific information.]

1910.1045(p)(3)(i)—The employer *shall ensure that **precautionary labels** are in compliance with paragraph (p)(1)(i) [Hazard Communication] of this section and are **affixed** to all containers of liquid AN and AN-based materials not exempted under paragraph (a)(2) of this section. The employer shall ensure that the **labels** remain **affixed** when the materials are sold, distributed, or otherwise leave the employer's workplace.*

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

- Programs, Plans and Procedures—work controls, compliance program, respirator program, action plan, medical surveillance program, training program, hazard communication program
- Recordkeeping—retention requirements, records, safety data sheets
- Training and Communications—initial and annual training, training program, hazard communication program
- Exposure Monitoring—determination, monitoring, posted results
- Medical Surveillance—program, initial and annual examinations, written opinion
- Qualified Person—physician
- Signs, Markings and Tags—posted signs, labels

Programs, Plans 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.*

Recordkeeping

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(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(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)(3)—*Information provided to the **physician**. The employer shall **provide information** to the examining **physician** as specified in the standard.*

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].*

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. [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. [Reference paragraph (j)(3)(i) for specific information.]

Exposure Monitoring

1910.1047(d)(1)(i)—Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 15-minute short-term exposures of each employee.

1910.1047(d)(1)(iii)—Where the employer can **document** that **exposure levels** are equivalent for similar operations in different work shifts, the employer need only determine representative employee exposure for that operation during one shift.

1910.1047(d)(2)(i)—Each employer who has a workplace or work operation covered by this standard, except as provided for in paragraph (a)(2) [Scope] or (d)(2)(ii) [Initial Monitoring] of this section, shall perform initial monitoring to determine accurately the airborne concentrations of EtO to which employees may be exposed.

1910.1047(d)(3)(i)—If the monitoring required by paragraph (d)(2) [Initial Monitoring] of this section reveals employee exposure at or above the action level but at or below the 8-hour TWA, the employer shall repeat such monitoring for each such employee at least every 6 months.

1910.1047(d)(3)(ii)—If the monitoring required by paragraph (d)(2)(i) [Initial Monitoring] of this section reveals employee exposure above the 8-hour TWA, the employer shall repeat such monitoring for each such employee at least every 3 months.

1910.1047(d)(3)(iii)—The employer may alter the monitoring schedule from quarterly to semiannually for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee's exposure has decreased to or below the 8-hour TWA.

1910.1047(d)(3)(iv)—If the monitoring required by paragraph (d)(2)(i) [Initial Monitoring] of this section reveals employee exposure above the 15 minute excursion limit, the employer shall repeat such monitoring for each such employee at least every 3 months, and more often as necessary to evaluate exposure the employee's short-term exposures.

1910.1047(d)(5)—*Additional monitoring.* Notwithstanding the provisions of paragraph (d)(4) [Termination of Monitoring] of this section, the employer shall institute the exposure monitoring required under paragraphs (d)(2)(i) [Initial Monitoring] and (d)(3) [Monitoring Frequency] of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures to EtO or when the employer has any reason to suspect that a change may result in new or additional exposures.

1910.1047(d)(7)(i)—The employer must, within 15 working days after the **receipt** of the **results** of any monitoring performed under this section, notify each affected employee of these **results** either individually in **writing** or by **posting** the **results** in an appropriate location that is accessible to employees.

Medical Surveillance

1910.1047(i)(1)(i)(A)—The employer shall institute a **medical surveillance program** for all employees who are or may be exposed to EtO at or above the action level, without regard to the use of respirators, for at least 30 days a year.

1910.1047(i)(2)(i)—*Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (i)(1)(i) [Medical Surveillance] of this section on the following schedules:*

1910.1047(i)(2)(i)(A)—*Prior to assignment of the employee to an area where exposure may be at or above the action level for at least 30 days a year.*

1910.1047(i)(2)(i)(B)—*At least annually each employee exposed at or above the action level for at least 30 days in the past year.*

1910.1047(i)(2)(i)(C)—*At termination of employment or reassignment to an area where exposure to EtO is not at or above the action level for at least 30 days a year.*

1910.1047(i)(2)(i)(D)—*As medically appropriate for any employee exposed during an emergency.*

1910.1047(i)(2)(i)(E)—*As soon as possible, upon notification by an employee either (1) that the employee has developed signs or symptoms indicating possible overexposure to EtO, or (2) that the employee desires medical advice concerning the effects of current or past exposure to EtO on the employee's ability to produce a healthy child.*

1910.1047(i)(2)(i)(F)—*If the examining **physician** determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies recommended by the **physician**.*

1910.1047(i)(3)—***Information provided to the physician. The employer shall provide information to the examining physician as specified in the standard. [Reference paragraph (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. [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**.*

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.*

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. [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.

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

- Programs, Plans and Procedures—work controls, respirator program, housekeeping program, medical surveillance program, hazard communication program, training program, preventive maintenance
- Inspections and Tests—pulmonary function tests
- Recordkeeping—retention requirements
- Training and Communications—training program, initial and annual training
- Exposure Monitoring—periodic monitoring, posted results
- Medical Surveillance—questionnaires, initial and annual examinations
- Qualified Person—physician
- Signs, Markings and Tags—regulated areas, posted signs, labels

Programs, Plans 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(j)—Housekeeping. For operations involving formaldehyde liquids or gas, the employer shall conduct a **program** to detect **leaks and spills**, including regular visual inspections.

1910.1048(j)(1)—Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.

1910.1048(k)—Emergencies. For each workplace where there is the possibility of an emergency involving formaldehyde, the employer shall assure appropriate procedures are adopted to minimize injury and loss of life. Appropriate procedures shall be implemented in the event of an emergency.

1910.1048(l)(1)(i)—The employer shall institute **medical surveillance programs** for all employees exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL. [Reference paragraph (l) for specific information.]

1910.1048(m)(1)(i)—Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (Sec. 1910.1200) for formaldehyde.

1910.1048(m)(1)(iii)—Employers shall include formaldehyde in the **hazard communication program** established to comply with the HCS (Sec. 1910.1200). Employers shall ensure that each employee has access to **labels** on containers of formaldehyde and to **safety data sheets**, and is trained in accordance with the requirements of HCS and paragraph (m) [Employee Information and Training] of this section.

1910.1048(m)(4)(ii)—Manufacturers, importers, and distributors of formaldehyde-containing materials listed in paragraph (m)(1)(i) [Hazard Communication] shall assure that **safety data sheets** and updated information are provided to all employers purchasing such materials at the time of the initial shipment and at the time of the first shipment after a **safety data sheet** is updated.

1910.1048(m)(5)—**Written hazard communication program.** The employer shall develop, implement, and **maintain** at the workplace, a **written hazard communication program** for formaldehyde exposures in the workplace, which at a minimum describes how the requirements specified in this paragraph for **labels** and **other forms of warning** and **safety data sheets**, and paragraph (n) [Employee Information and Training] for employee information and training, will be met. Employers in multi-employer workplaces shall comply with the requirements of 29 CFR 1910.1200(e)(2) [Hazard Communication].

1910.1048(n)(1)—Participation. The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde **participate in a training program**, except that where the employer can show, using **objective data**, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training. [Reference paragraph (n)(3) for specific information.]

Inspections and Tests

1910.1048(j)—Housekeeping. For operations involving formaldehyde liquids or gas, the employer shall conduct a **program** to detect **leaks and spills**, including regular visual inspections.

1910.1048(j)(1)—Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.

Recordkeeping

1910.1048(d)(1)(iv)—Representative samples for each job classification in each work area shall be taken for each shift unless the employer can **document with objective data** that exposure levels for a given job classification are equivalent for different work shifts.

1910.1048(d)(6)—Employee notification of **monitoring results**. The employer must, within 15 working days after the **receipt of the results** of any monitoring performed under this section, notify each affected employee of these **results** either individually in **writing** or by **posting the results** in an appropriate location that is accessible to employees. If employee exposure is above the PEL, affected employees shall be provided with a **description of the corrective actions** being taken by the employer to decrease exposure.

1910.1048(l)(6)—**Information provided to the physician.** The employer shall **provide information** to the examining **physician** (specifically listed in standard). [Reference paragraph (l)(6) for specific information.]

1910.1048(l)(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(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(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***.

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). [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***. [Reference paragraph (n)(3) for specific information.]

1910.1048(n)(2)—***Frequency.*** Employers shall provide such information and training to employees at the time of initial assignment, and whenever a new exposure to formaldehyde is introduced into the work area. The training shall be repeated at least annually.

Exposure Monitoring

1910.1048(d)(1)(i)—Each employer who has a workplace covered by this standard *shall monitor employees* to determine their exposure to formaldehyde.

1910.1048(d)(1)(iv)—Representative samples for each job classification in each work area *shall be taken for each shift* unless the employer *can document with objective data* that exposure levels for a given job classification are equivalent for different work shifts.

1910.1048(d)(2)(i)—Unless the employer chooses to measure the exposure of each employee potentially exposed to formaldehyde, the employer *shall develop a representative sampling strategy and measure sufficient exposures within each job classification for each workshift to correctly* characterize and not underestimate the exposure of any employee within each exposure group.

1910.1048(d)(2)(ii)—The *initial monitoring process shall be repeated each time there is a change in production, equipment, process, personnel, or control measures* which may result in new or additional exposure to formaldehyde.

1910.1048(d)(2)(iii)—If the employer receives reports of signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure, the employer *shall promptly monitor* the affected employee's exposure.

1910.1048(d)(3)(i)—The employer *shall periodically measure and accurately determine exposure to formaldehyde for employees shown by the initial monitoring* to be exposed at or above the action level or at or above the STEL.

1910.1048(d)(3)(ii)—If the last **monitoring results** reveal employee exposure at or above the action level, the employer *shall repeat monitoring of the employees at least every 6 months*.

1910.1048(d)(3)(iii)—If the last **monitoring results** reveal employee exposure at or above the STEL, the employer *shall repeat monitoring of the employees at least once a year under worst conditions*.

1910.1048(d)(6)—*Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results* in an appropriate location that is accessible to employees. If employee exposure is above the PEL, affected employees shall be provided with a **description of the corrective actions** being taken by the employer to decrease exposure.

Medical Surveillance

1910.1048(l)(1)(i)—The employer *shall institute medical surveillance programs* for all employees exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL. [Reference paragraph (l) for specific information.]

1910.1048(l)(3)—**Medical disease questionnaire.** The employer shall make the following medical surveillance available to employees *prior to assignment to a job where formaldehyde exposure is at or above the action level or above the STEL and annually thereafter*. The employer *shall also make the following medical surveillance available promptly* upon determining that an employee is experiencing signs and symptoms indicative of possible overexposure to formaldehyde.

1910.1048(l)(3)(i)—*Administration of a medical disease questionnaire, such as in appendix D*, which is designed to elicit information on work history, smoking history, any evidence of eye, nose, or throat irritation; chronic airway problems or hyperreactive airway disease: allergic skin conditions or dermatitis; and upper or lower respiratory problems.

1910.1048(l)(3)(ii)—*A determination by the physician, based on evaluation of the medical disease questionnaire, of whether a medical examination is necessary* for employees not required to wear respirators to reduce exposure to formaldehyde.

1910.1048(l)(4)—*Medical examinations. Medical examinations shall be given to any employee who the physician feels, based on information in the medical disease questionnaire, may be at increased risk from exposure to formaldehyde and at the time of initial assignment and at least annually thereafter* to all employees required to wear a respirator to reduce exposure to formaldehyde.

1910.1048(l)(5)—*Examinations for employees exposed in an emergency. The employer shall make medical examinations available as soon as possible to all employees who have been exposed to formaldehyde in an emergency.*

1910.1048(l)(6)—*Information provided to the physician. The employer shall provide information to the examining physician (specifically listed in standard). [Reference paragraph (l)(6) for specific information.]*

1910.1048(l)(7)(i)—For each examination required under this standard, the employer shall obtain a **written opinion** from the examining **physician**. This **written opinion** shall contain the **results** of the **medical examination** except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde.

1910.1048(l)(9)(ii)—The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial **physician** conducts a medical examination or consultation for the purpose of medical removal or restriction.

1910.1048(l)(9)(iii)—The employer may condition its participation in, and payment for, the multiple **physician** review mechanism upon the employee doing the following *within fifteen (15) days after receipt of the notification* of the right to seek a second **medical opinion**, or *receipt of the initial physician's written opinion*, whichever is later.

Qualified Person

1910.1048(l)(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.

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**. [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. [Reference paragraph (h)(2)(ii)(A) for specific information.]

1910.1048(h)(2)(ii)(B)—**Labels**. The employer shall ensure containers for contaminated clothing and equipment are **labeled** consistent with the Hazard Communication Standard, Sec. 1910.1200. [Reference paragraph (h)(2)(ii)(B) for specific information.]

1910.1048(m)(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.

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, Plans and Procedures—emergency plan, fire prevention plan, compliance program, training program, respirator program, work controls, medical surveillance program, housekeeping program, hazard communication program
- Inspections and Tests—visual inspections, corrective actions, documentation
- Recordkeeping—records, retention requirements, safety data sheets
- Training and Communications—inform launderers, initial and annual training, SDS
- Exposure Monitoring—determinations, monitoring initially, every 6 months, and quarterly, posted results
- Medical Surveillance—program, initial, annual, emergency and “other” examinations, written opinions
- Qualified Person—physician
- Signs, Markings and Tags—marked regulated areas, labels, posted results

Programs, Plans 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)(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. [Reference paragraph (m) for specific information.]

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) [Recordkeeping] of this section.

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(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(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(e)(8)(iii)—Maintain records of the **corrective actions** in accordance with paragraph (n) [Recordkeeping] of this section.

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(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(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.*

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].*

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**.

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.

Medical Surveillance

1910.1050(m)(1)(i)—The employer shall make available a **medical surveillance program** for employees exposed to MDA. [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.*

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.*

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. *[Reference paragraph (k)(2)(i)(A) for specific information.]*

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

- Programs, Plans and Procedures—work controls, respirator program, action plan, hazard communications program
- Recordkeeping—retention requirements, records
- Training and Communications—initial and annual training, instruct physician
- Exposure Monitoring—initial and periodic monitoring, posted results
- Medical Surveillance—initial and periodic examinations, written opinion
- Qualified Person—physician
- Signs, Markings and Tags—marked regulated areas

Programs, Plans 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.*

Recordkeeping

1910.1052(d)(2)(i)—*Where **objective data** demonstrate that MC cannot be released in the workplace in airborne concentrations at or above the action level or above the STEL. The **objective data** shall represent the highest MC exposures likely to occur under reasonably foreseeable conditions of processing, use, or handling. The employer shall **document the objective data exemption** as specified in paragraph (m) [Recordkeeping] of this section.*

1910.1052(g)(4)(ii)—*Ensure that the **PLHCP** provides their findings in a **written opinion** to the employee and the employer.*

1910.1052(j)(8)—*Information provided to the physician or other licensed health care professional. The employer shall provide information [specified in the standard] to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects. [Reference paragraph (j) for specific information.]*

1910.1052(j)(9)(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)(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].*

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. [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.

Exposure Monitoring

1910.1052(d)(2)—Initial determination. Each employer whose employees are exposed to MC shall perform initial exposure monitoring to determine each affected employee's exposure.

1910.1052(d)(2)(i)—Where **objective data** demonstrate that MC cannot be released in the workplace in airborne concentrations at or above the action level or above the STEL. The **objective data** shall represent the highest MC exposures likely to occur under reasonably foreseeable conditions of processing, use, or handling. The employer shall **document the objective data** exemption as specified in paragraph (m) [Recordkeeping] of this section.

1910.1052(d)(3)—Periodic monitoring. Where the initial determination shows employee exposures at or above the action level or above the STEL, the employer shall establish an **exposure monitoring program** for periodic monitoring of employee exposure to MC in accordance with Table 1.

1910.1052(d)(4)(i)—The employer shall perform exposure monitoring when a change in workplace conditions indicates that employee exposure may have increased. Examples of situations that may require additional monitoring include changes in production, process, control equipment, or work practices, or a leak, rupture, or other breakdown.

1910.1052(d)(5)(i)—The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results in writing, either individually or by posting of results in an appropriate location that is accessible to affected employees.

Medical Surveillance

1910.1052(g)(4)—Medical evaluation. Before having an employee use a supplied-air respirator in the negative-pressure mode, or a gas mask with an organic-vapor canister for emergency escape, the employer must:

1910.1052(g)(4)(i)—Have a **physician** or other **licensed health-care professional (PLHCP)** evaluate the employee's ability to use such respiratory protection.

1910.1052(j)(1)—Affected employees. The employer shall make medical surveillance available for employees who are or may be exposed to MC.

1910.1052(j)(4)(i)—Initial surveillance. The employer shall provide initial medical surveillance under the schedule provided by paragraph (m)(2)(iii) [Medical Surveillance] of this section, or before the time of initial assignment of the employee, whichever is later. The employer need not provide the initial surveillance if **medical records** show that an affected employee has been provided with medical surveillance that complies with this section within 12 months before April 10, 1997.

1910.1052(j)(4)(ii)—*Periodic medical surveillance. The employer shall update the medical and work history for each affected employee annually. The employer shall provide periodic physical examinations, including appropriate laboratory surveillance, as follows:*

1910.1052(j)(4)(ii)(A)—*For employees 45 years of age or older, within 12 months of the initial surveillance or any subsequent medical surveillance.*

1910.1052(j)(4)(ii)(B)—*For employees younger than 45 years of age, within 36 months of the initial surveillance or any subsequent medical surveillance.*

1910.1052(j)(4)(iii)—*Termination of employment or reassignment. When an employee leaves the employer's workplace, or is reassigned to an area where exposure to MC is consistently at or below the action level and STEL, medical surveillance shall be made available if six months or more have elapsed since the last medical surveillance.*

1910.1052(j)(4)(iv)—*Additional surveillance. The employer shall provide additional medical surveillance at frequencies other than those listed above when recommended in the **written medical opinion**. (For example, the **physician** or other **licensed health care professional** may determine an examination is warranted in less than 36 months for employees younger than 45 years of age based upon evaluation of the **results** of the **annual medical and work history**.)*

1910.1052(j)(8)—*Information provided to the **physician** or other **licensed health care professional**. The employer shall provide **information** [specified in the standard] to a **physician or other licensed health care professional** who is involved in the diagnosis of MC-induced health effects. [Reference paragraph (j) for specific information.]*

1910.1052(j)(9)(i)—*For each physical examination required by this section, the employer shall ensure that the **physician or other licensed health care professional** provides to the employer and to the affected employee a **written opinion** regarding the **results** of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The **written medical opinion** shall be limited to specific information. [Reference Reference paragraph (j)(9) for specific information.]*

1910.1052(j)(14)(ii)—*If the employee does not agree with the opinion of the employer-selected **PLHCP**, notifies the employer of that fact, and takes steps to make an appointment with a second **PLHCP** within 15 days of receiving a **copy** of the **written opinion** of the initial **PLHCP**, the employer shall pay for the **PLHCP** chosen by the employee to perform specific tests. [Reference paragraph (j)(14) for specific information.]*

Qualified Person

1910.1052(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.*

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.

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

Programs, Plans 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. [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 work-place 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**). [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).

Recordkeeping

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

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

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

1910.1200(g)(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**). [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)(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)(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(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.

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)(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.

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. [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.

Qualified Person

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

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

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

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

Signs, Markings and Tags

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

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

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

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

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

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

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

1910.1200(g)(6)(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*.

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.

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

- Programs, Plans and Procedures—chemical hygiene plan, chemical hygiene officer and committee, SDS
- Recordkeeping—records, retention requirements
- Training and Communications—initial and refresher training
- Exposure Monitoring—initial monitoring, posted results
- Medical Surveillance—information provided to the physician, written opinions
- Qualified Person—physician
- Signs, Markings and Tags—labels

Programs, Plans 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**. [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**.

Recordkeeping

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(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**. [Reference paragraph (e) for specific information.]

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**.

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.***

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].*

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. [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. [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**. [Reference paragraph (g)(4) for specific information.]*

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.

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. [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*. [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*. [Reference paragraph (g)(4)(i) for specific information.]

Qualified Person

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*.

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.

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*.

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 919-707-7876. You may view the list of publications and also download many of them at <https://www.labor.nc.gov/safety-and-health/publications>. **Occupational Safety and Health (OSH)**

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 at www.labor.nc.gov**

Occupational Safety and Health Division

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Local Telephone: 919-707-7806 Fax: 919-707-7964

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: 919-707-7876 Fax: 919-707-7965

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: 919-707-7846 Fax: 919-707-7966

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: 919-707-7820 Fax: 919-707-7967

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: 910-530-6840 Fax: 910-251-2654

***To make an OSH Complaint, **OSH Complaint Desk:** 919-779-8560

For statistical information concerning program activities contact:

Planning, Statistics and Information Management Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7838 Fax: 919-707-7969

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: 919-707-7880 Fax: 919-707-7963

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: 919-707-7766 Fax: 919-733-6197