

(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.

[47 FR 16986, Apr. 20, 1982, as amended at 51 FR 34562, Sept. 29, 1986; 67 FR 44545, July 3, 2002]

#### § 1915.173 Drums and containers.

(a) Shipping drums and containers shall not be pressurized to remove their contents.

(b) A temporarily assembled pressurized piping system conveying hazardous liquids or gases shall be provided with a relief valve and by-pass to prevent rupture of the system and the escape of such hazardous liquids or gases.

(c) Pressure vessels, drums and containers containing toxic or flammable liquids or gases shall not be stored or used where they are subject to open flame, hot metal, or other sources of artificial heat.

(d) Unless pressure vessels, drums and containers of 30 gallon capacity or over containing flammable or toxic liquids or gases are placed in an out-of-the-way area where they will not be subject to physical injury from an outside source, barriers or guards shall be erected to protect them from such physical injury.

(e) Containers of 55 gallons or more capacity containing flammable or toxic liquid shall be surrounded by dikes or pans which enclose a volume equal to at least 35 percent of the total volume of the containers.

(f) Fire extinguishers adequate in number and suitable for the hazard shall be provided. These extinguishers shall be located in the immediate area where pressure vessels, drums and containers containing flammable liquids or gases are stored or in use. Such extinguishers shall be ready for use at all times.

### Subpart L—Electrical Machinery

#### § 1915.181 Electrical circuits and distribution boards.

(a) The provisions of this section shall apply to ship repairing and shipbuilding and shall not apply to shipbreaking.

(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.

(c) Deenergizing 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 be tagged to indicate that an employee is working on the circuit. Such tags shall not be removed nor the circuit energized until it is definitely determined that the work on the circuit has been completed.

(d) When work is performed immediately adjacent to an open-front energized board or in back of an energized board, the board shall be covered or some other equally safe means shall be used to prevent contact with any of the energized parts.

[47 FR 16986, Apr. 20, 1982, as amended at 67 FR 44545, July 3, 2002]

### Subparts M–O [Reserved]

### Subpart P—Fire Protection in Shipyard Employment

SOURCE: 69 FR 55702, Sept. 15, 2004, unless otherwise noted.

#### § 1915.501 General provisions.

(a) *Purpose.* The purpose of the standard in this subpart is to require employers to protect all employees from fire hazards in shipyard employment, including employees engaged in fire response activities.

(b) *Scope.* This subpart covers employers with employees engaged in

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shipyard employment aboard vessels and vessel sections, and on land-side operations regardless of geographic location.

(c) *Employee participation.* 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.

(d) *Multi-employer worksites.* (1) *Host employer responsibilities.* The host employer's responsibilities are to:

(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;

(ii) Make sure the safety and health responsibilities for fire protection are assigned as appropriate to other employers at the worksite; and

(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.

(2) *Contract employer responsibilities.* The contract employer's responsibilities are to:

(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; and

(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.**

(a) *Employer responsibilities.* 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.)

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(b) *Plan elements.* The employer must include the following information in the fire safety plan:

(1) Identification of the significant fire hazards;

(2) Procedures for recognizing and reporting unsafe conditions;

(3) Alarm procedures;

(4) Procedures for notifying employees of a fire emergency;

(5) Procedures for notifying fire response organizations of a fire emergency;

(6) Procedures for evacuation;

(7) Procedures to account for all employees after an evacuation; and

(8) Names, job titles, or departments for individuals who can be contacted for further information about the plan.

(c) *Reviewing the plan with employees.* The employer must review the plan with each employee at the following times:

(1) Within 90 days of December 14, 2004, for employees who are currently working;

(2) Upon initial assignment for new employees; and

(3) When the actions the employee must take under the plan change because of a change in duties or a change in the plan.

(d) *Additional employer requirements.* The employer also must:

(1) Keep the plan accessible to employees, employee representatives, and OSHA;

(2) Review and update the plan whenever necessary, but at least annually;

(3) Document that affected employees have been informed about the plan as required by paragraph (c) of this section; and

(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.

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

**§ 1915.503 Precautions for hot work.**

(a) *General requirements.* (1) *Designated Areas.* The employer may designate

areas for hot work in sites such as vessels, vessel sections, fabricating shops, and subassembly areas that are free of fire hazards.

(2) *Non-designated Areas.* (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.

(ii) The employer shall authorize employees to perform hot work only in areas that are free of fire hazards, or that have been controlled by physical isolation, fire watches, or other positive means.

NOTE TO PARAGRAPH (a)(2): The requirements of paragraph (a)(2) apply to all hot work operations in shipyard employment except those covered by § 1915.14.

(b) *Specific requirements.* (1) *Maintaining fire hazard-free conditions.* The employer must keep all hot work areas free of new hazards that may cause or contribute to the spread of fire. Unexpected energizing and energy release are covered by 29 CFR 1915.181, Subpart L. Exposure to toxic and hazardous substances is covered in 29 CFR 1915.1000 through 1915.1450, subpart Z.

(2) *Fuel gas and oxygen supply lines and torches.* The employer must make sure that:

(i) No unattended fuel gas and oxygen hose lines or torches are in confined spaces;

(ii) No unattended charged fuel gas and oxygen hose lines or torches are in enclosed spaces for more than 15 minutes; and

(iii) All fuel gas and oxygen hose lines are disconnected at the supply manifold at the end of each shift;

(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.

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

(1) The training employees must be given (§ 1915.508(c) contains detailed fire watch training requirements);

(2) The duties employees are to perform;

(3) The equipment employees must be given; and

(4) The personal protective equipment (PPE) that must be made available and worn as required by 29 CFR Part 1915, Subpart I.

(b) *Posting fire watches.* The employer must post a fire watch if during hot work any of the following conditions are present:

(1) Slag, weld splatter, or sparks might pass through an opening and cause a fire;

(2) Fire-resistant guards or curtains are not used to prevent ignition of combustible materials on or near decks, bulkheads, partitions, or overheads;

(3) Combustible material closer than 35 ft. (10.7m) to the hot work in either the horizontal or vertical direction cannot be removed, protected with flame-proof covers, or otherwise shielded with metal or fire-resistant guards or curtains;

(4) The hot work is carried out on or near insulation, combustible coatings, or sandwich-type construction that cannot be shielded, cut back, or removed, or in a space within a sandwich type construction that cannot be inerted;

(5) Combustible materials adjacent to the opposite sides of bulkheads, decks, overheads, metal partitions, or sandwich-type construction may be ignited by conduction or radiation;

(6) The hot work is close enough to cause ignition through heat radiation or conduction on the following:

(i) Insulated pipes, bulkheads, decks, partitions, or overheads; or

(ii) Combustible materials and/or coatings;

(7) The work is close enough to unprotected combustible pipe or cable runs to cause ignition; or

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(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.

(c) *Assigning employees to fire watch duty.* (1) The employer must not assign other duties to a fire watch while the hot work is in progress.

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

(i) Have a clear view of and immediate access to all areas included in the fire watch;

(ii) Are able to communicate with workers exposed to hot work;

(iii) Are authorized to stop work if necessary and restore safe conditions within the hot work area;

(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;

(v) Are trained to detect fires that occur in areas exposed to the hot work;

(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;

(vii) Alert employees of any fire beyond the incipient stage; and

(viii) If unable to extinguish fire in the areas exposed to the hot work, activate the alarm.

(3) The employer must ensure that employees assigned to fire watch are physically capable of performing these duties.

§ 1915.505 **Fire response.**

(a) *Employer responsibilities.* The employer must:

(1) Decide what type of response will be provided and who will provide it; and

(2) Create, maintain, and update a written policy that:

(i) Describes the internal and outside fire response organizations that the employer will use; and

(ii) Defines what evacuation procedures employees must follow, if the employer chooses to require a total or partial evacuation of the worksite at the time of a fire.

(b) *Required written policy information.*

(1) *Internal fire response.* If an internal fire response is to be used, the employer must include the following information in the employer's written policy:

(i) The basic structure of the fire response organization;

(ii) The number of trained fire response employees;

(iii) The fire response functions that may need to be carried out;

(iv) The minimum number of fire response employees necessary, the number and types of apparatuses, and a description of the fire suppression operations established by written standard operating procedures for each type of fire response at the employer's facility;

(v) The type, amount, and frequency of training that must be given to fire response employees; and

(vi) The procedures for using protective clothing and equipment.

(2) *Outside fire response.* If an outside fire response organization is used, the employer must include the following information in the written policy:

(i) The types of fire suppression incidents to which the fire response organization is expected to respond at the employer's facility or worksite;

(ii) The liaisons between the employer and the outside fire response organizations; and

(iii) A plan for fire response functions that:

(A) Addresses procedures for obtaining assistance from the outside fire response organization;

(B) Familiarizes the outside fire response organization with the layout of the employer's facility or worksite, including access routes to controlled areas, and site-specific operations, occupancies, vessels or vessel sections, and hazards; and,

(C) Sets forth how hose and coupling connection threads are to be made compatible and includes where the adapter couplings are kept; or

(D) States that the employer will not allow the use of incompatible hose connections.

(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 following information, in addition to

the requirements in paragraphs (b)(1) and (2) of this section, in the written policy:

- (i) The basic organizational structure of the combined fire response;
- (ii) The number of combined trained fire responders;
- (iii) The fire response functions that may need to be carried out;
- (iv) The minimum number of fire response employees necessary, the number and types of apparatuses, and a description of the fire suppression operations established by written standard operating procedures for each particular type of fire response at the worksite; and
- (v) The type, amount, and frequency of joint training with outside fire response organizations if given to fire response employees.

(4) *Employee evacuation.* The employer must include the following information in the employer's written policy:

- (i) Emergency escape procedures;
- (ii) Procedures to be followed by employees who may remain longer at the worksite to perform critical shipyard employment operations during the evacuation;
- (iii) Procedures to account for all employees after emergency evacuation is completed;
- (iv) The preferred means of reporting fires and other emergencies; and
- (v) Names or job titles of the employees or departments to be contacted for further information or explanation of duties.

(5) *Rescue and emergency response.* The employer must include the following information in the employer's written policy:

- (i) A description of the emergency rescue procedures; and
- (ii) Names or job titles of the employees who are assigned to perform them.

(c) *Medical requirements for shipyard fire response employees.* The employer must ensure that:

- (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;
- (2) Fire response employees, who are required to wear respirators in per-

forming their duties, meet the medical requirements of § 1915.154;

(3) Each fire response employee has an annual medical examination; and

(4) The medical records of fire response employees are kept in accordance with § 1915.1020.

(d) *Organization of internal fire response functions.* The employer must:

(1) Organize fire response functions to ensure enough resources to conduct emergency operations safely;

(2) Establish lines of authority and assign responsibilities to ensure that the components of the internal fire response are accomplished;

(3) Set up an incident management system to coordinate and direct fire response functions, including:

(i) Specific fire emergency responsibilities;

(ii) Accountability for all fire response employees participating in an emergency operation; and

(iii) Resources offered by outside organizations; and

(4) Provide the information required in this paragraph (d) to the outside fire response organization to be used.

(e) *Personal protective clothing and equipment for fire response employees.* (1) *General requirements.* The employer must:

(i) Supply to all fire response employees, at no cost, the appropriate personal protective clothing and equipment they may need to perform expected duties; and

(ii) Ensure that fire response employees wear the appropriate personal protective clothing and use the equipment, when necessary, to protect them from hazardous exposures.

(2) *Thermal stability and flame resistance.* The employer must:

(i) Ensure that each fire response employee exposed to the hazards of flame does not wear clothing that could increase the extent of injury that could be sustained; and

(ii) Prohibit wearing clothing made from acetate, nylon, or polyester, either alone or in blends, unless it can be shown that:

(A) The fabric will withstand the flammability hazard that may be encountered; or

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(B) The clothing will be worn in such a way to eliminate the flammability hazard that may be encountered.

(3) *Respiratory protection.* The employer must:

(i) Provide self-contained breathing apparatus (SCBA) to all fire response employees involved in an emergency operation in an atmosphere that is immediately dangerous to life or health (IDLH), potentially IDLH, or unknown;

(ii) Provide SCBA to fire response employees performing emergency operations during hazardous chemical emergencies that will expose them to known hazardous chemicals in vapor form or to unknown chemicals;

(iii) Provide fire response employees who perform or support emergency operations that will expose them to hazardous chemicals in liquid form either:

(A) SCBA, or

(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;

(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;

(v) Provide only SCBA that meet the requirements of NFPA 1981-1997 Standard on Open-Circuit Self-Contained Breathing Apparatus for the Fire Service (incorporated by reference, see § 1915.5); and

(vi) Ensure that the respiratory protection program and all respiratory protection equipment comply with § 1915.154.

(4) *Interior structural firefighting operations.* The employer must:

(i) Supply at no cost to all fire response employees exposed to the hazards of shipyard fire response, a helmet, gloves, footwear, and protective hoods, and either a protective coat and trousers or a protective overall; and

(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).

(5) *Proximity firefighting operations.* 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).

(6) *Personal Alert Safety System (PASS) devices.* The employer must:

(i) Provide each fire response employee involved in firefighting operations with a PASS device; and

(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).

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

(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);

(ii) Fire response employees use only Class I body harnesses to attach to ladders and aerial devices; and

(iii) Fire response employees use only Class II and Class III body harnesses for fall arrest and rappelling operations.

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

(2) *Fire response equipment.* The employer must:

(i) Keep fire response equipment in a state of readiness;

(ii) Standardize all fire hose coupling and connection threads throughout the facility and on vessels and vessel sections by providing the same type of hose coupling and connection threads for hoses of the same or similar diameter; and

(iii) Ensure that either all fire hoses and coupling connection threads are the same within a facility or vessel or vessel section as those used by the outside fire response organization, or supply suitable adapter couplings if such

an organization is expected to use the fire response equipment within a facility or vessel or vessel section.

**§ 1915.506 Hazards of fixed extinguishing systems on board vessels and vessel sections.**

(a) *Employer responsibilities.* The employer must comply with the provisions of this section whenever employees are exposed to fixed extinguishing systems that could create a dangerous atmosphere when activated in vessels and vessel sections, regardless of geographic location.

(b) *Requirements for automatic and manual systems.* Before any work is done in a space equipped with fixed extinguishing systems, the employer must either:

(1) Physically isolate the systems or use other positive means to prevent the systems' discharge; or

(2) Ensure employees are trained to recognize:

(i) Systems' discharge and evacuation alarms and the appropriate escape routes; and

(ii) Hazards associated with the extinguishing systems and agents including the dangers of disturbing system components and equipment such as piping, cables, linkages, detection devices, activation devices, and alarm devices.

(c) *Sea and dock trials.* During trials, the employer must ensure that all systems shall remain operational.

(d) *Doors and hatches.* The employer must:

(1) Take protective measures to ensure that all doors, hatches, scuttles, and other exit openings remain working and accessible for escape in the event the systems are activated; and

(2) Ensure that all inward opening doors, hatches, scuttles, and other potential barriers to safe exit are removed, locked open, braced, or otherwise secured so that they remain open and accessible for escape if systems' activation could result in a positive pressure in the protected spaces sufficient to impede escape.

(e) *Testing the system.* (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 em-

ployees remain in the space during the discharge. The employer must retest the atmosphere in accordance with § 1915.12 to ensure that the oxygen levels are safe for employees to enter.

(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.

(f) *Conducting system maintenance.* Before conducting maintenance on a fixed extinguishing system, the employer must ensure that the system is physically isolated.

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

(1) Only authorized employees are allowed to activate the system;

(2) Authorized employees are trained to operate and activate the systems; and

(3) All employees are evacuated from the protected spaces, and accounted for, before the fixed manual extinguishing system is activated.

**§ 1915.507 Land-side fire protection systems.**

(a) *Employer responsibilities.* The employer must ensure all fixed and portable fire protection systems needed to meet an OSHA standard for employee safety or employee protection from fire hazards in land-side facilities, including, but not limited to, buildings, structures, and equipment, meet the requirements of this section.

(b) *Portable fire extinguishers and hose systems.* (1) The employer must select, install, inspect, maintain, and test all portable fire extinguishers according to NFPA 10-1998 Standard for Portable Fire Extinguishers (incorporated by reference, see § 1915.5).

(2) The employer is permitted to use Class II or Class III hose systems, in accordance with NFPA 10-1998, as portable fire extinguishers if the employer selects, installs, inspects, maintains, and tests those systems according to

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the specific recommendations in NFPA 14-2000 Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems (incorporated by reference, see § 1915.5).

(c) *General requirements for fixed extinguishing systems.* The employer must:

(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;

(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;

(3) Ensure all repairs to fire extinguishing systems and equipment are done by a qualified technician or mechanic;

(4) Provide and ensure employees use proper personal protective equipment when entering discharge areas in which the atmosphere remains hazardous to employee safety or health, or provide safeguards to prevent employees from entering those areas. See § 1915.12 for additional requirements applicable to safe entry into spaces containing dangerous atmospheres;

(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; and

(6) Select, install, inspect, maintain, and test all automatic fire detection systems and emergency alarms according to NFPA 72-1999 National Fire Alarm Code (incorporated by reference, see § 1915.5).

(d) *Fixed extinguishing systems.* The employer must select, install, maintain, inspect, and test all fixed systems required by OSHA as follows:

(1) Standpipe and hose systems according to NFPA 14-2000 Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems (incorporated by reference, see § 1915.5);

(2) Automatic sprinkler systems according to NFPA 25-2002 Standard for

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the Inspection, Testing, and Maintenance of Water-based Fire Protection Systems, (incorporated by reference, see § 1915.5), and either NFPA 13-1999 Standard for the Installation of Sprinkler Systems (incorporated by reference, see § 1915.5) or NFPA 750-2000 Standard on Water Mist Fire Protection Systems (incorporated by reference, see § 1915.5);

(3) Fixed extinguishing systems that use water or foam as the extinguishing agent according to NFPA 15-2001 Standard for Water Spray Fixed Systems for Fire Protection (incorporated by reference, see § 1915.5); NFPA 11-1998 Standard for Low-Expansion Foam (incorporated by reference, see § 1915.5); and NFPA 11A-1999 Standard for Medium- and High-Expansion Foam Systems (incorporated by reference, see 1915.5);

(4) Fixed extinguishing systems using dry chemical as the extinguishing agent according to NFPA 17-2002 Standard for Dry Chemical Extinguishing Systems (incorporated by reference, see § 1915.5); and

(5) Fixed extinguishing systems using gas as the extinguishing agent according to NFPA 12-2000 Standard on Carbon Dioxide Extinguishing Systems (incorporated by reference, see § 1915.5); NFPA 12A-1997 Standard on Halon 1301 Fire Extinguishing Systems (incorporated by reference, see § 1915.5); and NFPA 2001-2000 Standard on Clean Agent Fire Extinguishing Systems (incorporated by reference, see § 1915.5).

### § 1915.508 Training.

(a) The employer must train employees in the applicable requirements of this section:

(1) Within 90 days of December 14, 2004, for employees currently working;

(2) Upon initial assignment for new employees; and

(3) When necessary to maintain proficiency for employees previously trained.

(b) *Employee training.* The employer must ensure that all employees are trained on:

(1) The emergency alarm signals, including system discharge alarms and employee evacuation alarms; and

(2) The primary and secondary evacuation routes that employees must use



in the event of a fire in the workplace. While all vessels and vessel sections must have a primary evacuation route, a secondary evacuation route is not required when impracticable.

(c) *Additional training requirements for employees expected to fight incipient stage fires.* The employer must ensure that employees expected to fight incipient stage fires are trained on the following:

(1) The general principles of using fire extinguishers or hose lines, the hazards involved with incipient fire-fighting, and the procedures used to reduce these hazards;

(2) The hazards associated with fixed and portable fire protection systems that employees may use or to which they may be exposed during discharge of those systems; and

(3) The activation and operation of fixed and portable fire protection systems that the employer expects employees to use in the workplace.

(d) *Additional training requirements for shipyard employees designated for fire response.* The employer must:

(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;

(2) Keep written standard operating procedures that address anticipated emergency operations and update these procedures as necessary;

(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;

(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;

(5) Train new fire response employees before they engage in emergency operations;

(6) At least quarterly, provide training on the written operating procedures to fire response employees who are expected to fight fires;

(7) Use qualified instructors to conduct the training;

(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);

(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

(10) Prohibit the use of smoke generating devices that create a dangerous atmosphere in training exercises.

(e) *Additional training requirements for fire watch duty.* (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:

(i) Before being assigned to fire watch duty;

(ii) Whenever there is a change in operations that presents a new or different hazard;

(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

(iv) Annually.

(2) The employer must ensure that each employee who stands fire watch duty is trained in:

(i) The basics of fire behavior, the different classes of fire and of extinguishing agents, the stages of fire, and methods for extinguishing fires;

(ii) Extinguishing live fire scenarios whenever allowed by local and federal law;

(iii) The recognition of the adverse health effects that may be caused by exposure to fire;

(iv) The physical characteristics of the hot work area;

(v) The hazards associated with fire watch duties;

(vi) The personal protective equipment (PPE) needed to perform fire watch duties safely;

(vii) The use of PPE;

(viii) The selection and use of any fire extinguishers and fire hoses likely to be used by a fire watch in the work area;

(ix) The location and use of barriers;

(x) The means of communication designated by the employer for fire watches;

(xi) When and how to start fire alarm procedures; and

(xii) The employer's evacuation plan.

(3) The employer must ensure that each fire watch is trained to alert others to exit the space whenever:

(i) The fire watch perceives an unsafe condition;

(ii) The fire watch perceives that a worker performing hot work is in danger;

(iii) The employer or a representative of the employer orders an evacuation; or

(iv) An evacuation signal, such as an alarm, is activated.

(f) *Records.* The employer must keep records that demonstrate that employees have been trained as required by paragraphs (a) through (e) of this section.

(1) The employer must ensure that the records include the employee's name; the trainer's name; the type of training; and the date(s) on which the training took place.

(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.

**§ 1915.509 Definitions applicable to this subpart.**

*Alarm*—a signal or message from a person or device that indicates that there is a fire, medical emergency, or other situation that requires emergency response or evacuation. At some shipyards, this may be called an "incident" or a "call for service."

*Alarm system*—a system that warns employees at the worksite of danger.

*Body harness*—a system of straps that may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, shoulders, chest, and pelvis, with means for attaching it to other components of a personal fall arrest system.

*Class II standpipe system*—a 1½ inch (3.8 cm) hose system which provides a means for the control or extinguishment of incipient stage fires.

*Contract employer*—an employer, such as a painter, joiner, carpenter, or scaffolding sub-contractor, who performs

work under contract to the host employer or to another employer under contract to the host employer at the host employer's worksite. This excludes employers who provide incidental services that do not influence shipyard employment (such as mail delivery or office supply services).

*Dangerous atmosphere*—an atmosphere that may expose employees to the risk of death, incapacitation, injury, acute illness, or impairment of ability to self-rescue (*i.e.*, escape unaided from a confined or enclosed space).

*Designated area*—an area established for hot work after an inspection that is free of fire hazards.

*Drop Test*—a method utilizing gauges to ensure the integrity of an oxygen fuel gas burning system. The method requires that the burning torch is installed to one end of the oxygen and fuel gas lines and then the gauges are attached to the other end of the hoses. The manifold or cylinder supply valve is opened and the system is pressurized. The manifold or cylinder supply valve is then closed and the gauges are watched for at least sixty (60) seconds. Any drop in pressure indicates a leak.

*Emergency operations*—activities performed by fire response organizations that are related to: rescue, fire suppression, emergency medical care, and special operations or activities that include responding to the scene of an incident and all activities performed at that scene.

*Fire hazard*—a condition or material that may start or contribute to the spread of fire.

*Fire protection*—methods of providing fire prevention, response, detection, control, extinguishment, and engineering.

*Fire response*—the activity taken by the employer at the time of an emergency incident involving a fire at the worksite, including fire suppression activities carried out by internal or external resources or a combination of both, or total or partial employee evacuation of the area exposed to the fire.

*Fire response employee*—a shipyard employee who carries out the duties and responsibilities of shipyard fire-fighting in accordance with the fire safety plan.

*Fire response organization*—an organized group knowledgeable, trained, and skilled in shipyard firefighting operations that responds to shipyard fire emergencies, including: fire brigades, shipyard fire departments, private or contractual fire departments, and municipal fire departments.

*Fire suppression*—the activities involved in controlling and extinguishing fires.

*Fire watch*—the activity of observing and responding to the fire hazards associated with hot work in shipyard employment and the employees designated to do so.

*Fixed extinguishing system*—a permanently installed fire protection system that either extinguishes or controls fire occurring in the space it protects.

*Flammable liquid*—any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

*Hazardous substance*—a substance likely to cause injury by reason of being explosive, flammable, poisonous, corrosive, oxidizing, an irritant, or otherwise harmful.

*Hose systems*—fire protection systems consisting of a water supply, approved fire hose, and a means to control the flow of water at the output end of the hose.

*Host employer*—an employer who is in charge of coordinating work or who hires other employers to perform work at a multi-employer workplace.

*Incident management system*—a system that defines the roles and responsibilities to be assumed by personnel and the operating procedures to be used in the management and direction of emergency operations; the system is also referred to as an “incident command system” (ICS).

*Incipient stage fire*—a fire, in the initial or beginning stage, which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

*Inerting*—the displacement of the atmosphere in a permit space by non-combustible gas (such as nitrogen) to

such an extent that the resulting atmosphere is noncombustible. This procedure produces an IDLH oxygen-deficient atmosphere.

*Interior structural firefighting operations*—the physical activity of fire response, rescue, or both involving a fire beyond the incipient stage inside of buildings, enclosed structures, vessels, and vessel sections.

*Multi-employer workplace*—a workplace where there is a host employer and at least one contract employer.

*Personal Alert Safety System (PASS)*—a device that sounds a loud signal if the wearer becomes immobilized or is motionless for 30 seconds or more.

*Physical isolation*—the elimination of a fire hazard by removing the hazard from the work area (at least 35 feet for combustibles), by covering or shielding the hazard with a fire-resistant material, or physically preventing the hazard from entering the work area.

*Physically isolated*—positive isolation of the supply from the distribution piping of a fixed extinguishing system. Examples of ways to physically isolate include: removing a spool piece and installing a blank flange; providing a double block and bleed valve system; or completely disconnecting valves and piping from all cylinders or other pressure vessels containing extinguishing agents.

*Protected space*—any space into which a fixed extinguishing system can discharge.

*Proximity firefighting*—specialized fire-fighting operations that require specialized thermal protection and may include the activities of rescue, fire suppression, and property conservation at incidents involving fires producing very high levels of conductive, convective, and radiant heat such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Proximity firefighting operations usually are exterior operations but may be combined with structural firefighting operations. Proximity firefighting is not entry firefighting.

*Qualified instructor*—a person with specific knowledge, training, and experience in fire response or fire watch activities to cover the material found in § 1915.508(b) or (c).

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*Rescue*—locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and transporting the injured to an appropriate health care facility.

*Shipyard firefighting*—the activity of rescue, fire suppression, and property conservation involving buildings, enclosed structures, vehicles, vessels, aircraft, or similar properties involved in a fire or emergency situation.

*Small hose system*—a system of hoses ranging in diameter from 5/8" (1.6 cm) up to 1 1/2" (3.8 cm) which is for the use of employees and which provides a means for the control and extinguishment of incipient stage fires.

*Standpipe*—a fixed fire protection system consisting of piping and hose connections used to supply water to approved hose lines or sprinkler systems. The hose may or may not be connected to the system.

**APPENDIX A TO SUBPART P TO PART 1915—MODEL FIRE SAFETY PLAN (NON-MANDATORY)**

**MODEL FIRE SAFETY PLAN**

NOTE: This appendix is non-mandatory and provides guidance to assist employers in establishing a Fire Safety Plan as required in §1915.502.

**TABLE OF CONTENTS**

- I. Purpose.
- II. Work site fire hazards and how to properly control them.
- III. Alarm systems and how to report fires.
- IV. How to evacuate in different emergency situations.
- V. Employee awareness.

**I. PURPOSE**

The purpose of this fire safety plan is to inform our employees of how we will control and reduce the possibility of fire in the workplace and to specify what equipment employees may use in case of fire.

**II. WORK SITE FIRE HAZARDS AND HOW TO PROPERLY CONTROL THEM**

- A. Measures to contain fires.
- B. Teaching selected employees how to use fire protection equipment.
- C. What to do if you discover a fire.
- D. Potential ignition sources for fires and how to control them.
- E. Types of fire protection equipment and systems that can control a fire.
- F. The level of firefighting capability present in the facility, vessel, or vessel section.

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G. Description of the personnel responsible for maintaining equipment, alarms, and systems that are installed to prevent or control fire ignition sources, and to control fuel source hazards.

**III. ALARM SYSTEMS AND HOW TO REPORT FIRES**

- A. A demonstration of alarm procedures, if more than one type exists.
- B. The work site emergency alarm system.
- C. Procedures for reporting fires.

**IV. HOW TO EVACUATE IN DIFFERENT EMERGENCY SITUATIONS**

- A. Emergency escape procedures and route assignments.
- B. Procedures to account for all employees after completing an emergency evacuation.
- C. What type of evacuation is needed and what the employee's role is in carrying out the plan.
- D. Helping physically impaired employees.

**V. EMPLOYEE AWARENESS**

Names, job titles, or departments of individuals who can be contacted for further information about this plan.

**Subparts Q-Y [Reserved]**

**Subpart Z—Toxic and Hazardous Substances**

SOURCE: 58 FR 35514, July 1, 1993, unless otherwise noted.

**§1915.1000 Air contaminants.**

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.

(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.

(2) *Other Substances—8-hour Time Weighted Averages.* An employee's exposure to any substance in Table Z—Shipyards, the exposure limit of which