

Federal Regulations

- Three federal regulations that have been included.
- 49 CFR 2014 Ch.1 (10-1-14 Edition) Subchapter C - Hazardous Material Regulations
 - These regulations will govern should hazardous material like gasoline or fuel oil be moved thru the facility.
- CRS Report 7-5700 Federal Permitting and Oversight of Export of Fossil Fuels, Sept. 17, 2013
 - This report summarizes federal oversight of fossil fuel export.
- 29 CFR Ch. XVII (7-1-07 Edition) Part 1917 Marine Terminals
 - OSHA Regulations governing Marine Terminal operations.

SUBCHAPTER C—HAZARDOUS MATERIALS REGULATIONS

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

Sec.

Subpart A—Applicability, General Requirements, and North American Shipments

- 171.1 Applicability of Hazardous Materials Regulations (HMR) to persons and functions.
- 171.2 General requirements.
- 171.3 Hazardous waste.
- 171.4 Marine pollutants.
- 171.6 Control numbers under the Paperwork Reduction Act.
- 171.7 Reference material.
- 171.8 Definitions and abbreviations.
- 171.9 Rules of construction.
- 171.10 Units of measure.
- 171.11 [Reserved]
- 171.12 North American Shipments.
- 171.12a [Reserved]
- 171.14 [Reserved]

Subpart B—Incident Reporting, Notification, BOE Approvals and Authorization

- 171.15 Immediate notice of certain hazardous materials incidents.
- 171.16 Detailed hazardous materials incident reports.
- 171.17–171.18 [Reserved]
- 171.19 Approvals or authorizations issued by the Bureau of Explosives.
- 171.20 Submission of Examination Reports.
- 171.21 Assistance in investigations and special studies.

Subpart C—Authorization and Requirements for the Use of International Transport Standards and Regulations

- 171.22 Authorization and conditions for the use of international standards and regulations.
- 171.23 Requirements for specific materials and packagings transported under the ICAO Technical Instructions, IMDG Code, Transport Canada TDG Regulations, or the IAEA Regulations.
- 171.24 Additional requirements for the use of the ICAO Technical Instructions.
- 171.25 Additional requirements for the use of the IMDG Code.
- 171.26 Additional requirements for the use of the IAEA Regulations.

AUTHORITY: 49 U.S.C. 5101–5128, 44701; Pub. L. 101–410 section 4 (28 U.S.C. 2461 note); Pub. L. 104–134, section 31001; 49 CFR 1.81 and 1.97.

EDITORIAL NOTE: Nomenclature changes to part 171 appear at 70 FR 56090, Sept. 23, 2005.

Subpart A—Applicability, General Requirements, and North American Shipments

§ 171.1 Applicability of Hazardous Materials Regulations (HMR) to persons and functions.

Federal hazardous materials transportation law (49 U.S.C. 5101 *et seq.*) directs the Secretary of Transportation to establish regulations for the safe and secure transportation of hazardous materials in commerce, as the Secretary considers appropriate. The Secretary is authorized to apply these regulations to persons who transport hazardous materials in commerce. In addition, the law authorizes the Secretary to apply these regulations to persons who cause hazardous materials to be transported in commerce. The law also authorizes the Secretary to apply these regulations to persons who manufacture or maintain a packaging or a component of a packaging that is represented, marked, certified, or sold as qualified for use in the transportation of a hazardous material in commerce. Federal hazardous material transportation law also applies to anyone who indicates by marking or other means that a hazardous material being transported in commerce is present in a package or transport conveyance when it is not, and to anyone who tampers with a package or transport conveyance used to transport hazardous materials in commerce or a required marking, label, placard, or shipping description. Regulations prescribed in accordance with Federal hazardous materials transportation law shall govern safety aspects, including security, of the transportation of hazardous materials that the Secretary considers appropriate. In 49 CFR 1.53, the Secretary delegated authority to issue regulations for the safe and secure transportation of hazardous materials in commerce to the Pipeline and Hazardous Materials Safety Administrator. The Administrator issues the Hazardous Materials Regulations (HMR; 49 CFR

§ 171.1

parts 171 through 180) under that delegated authority. This section addresses the applicability of the HMR to packagings represented as qualified for use in the transportation of hazardous materials in commerce and to pre-transportation and transportation functions.

(a) *Packagings*. Requirements in the HMR apply to each person who manufactures, fabricates, marks, maintains, reconditions, repairs, or tests a packaging or a component of a packaging that is represented, marked, certified, or sold as qualified for use in the transportation of a hazardous material in commerce, including each person under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal government who manufactures, fabricates, marks, maintains, reconditions, repairs, or tests a packaging or a component of a packaging that is represented, marked, certified, or sold as qualified for use in the transportation of a hazardous material in commerce.

(b) *Pre-transportation functions*. Requirements in the HMR apply to each person who offers a hazardous material for transportation in commerce, causes a hazardous material to be transported in commerce, or transports a hazardous material in commerce and who performs or is responsible for performing a pre-transportation function, including each person performing pre-transportation functions under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal government. Pre-transportation functions include, but are not limited to, the following:

(1) Determining the hazard class of a hazardous material.

(2) Selecting a hazardous materials packaging.

(3) Filling a hazardous materials packaging, including a bulk packaging.

(4) Securing a closure on a filled or partially filled hazardous materials package or container or on a package or container containing a residue of a hazardous material.

(5) Marking a package to indicate that it contains a hazardous material.

49 CFR Ch. I (10–1–14 Edition)

(6) Labeling a package to indicate that it contains a hazardous material.

(7) Preparing a shipping paper.

(8) Providing and maintaining emergency response information.

(9) Reviewing a shipping paper to verify compliance with the HMR or international equivalents.

(10) For each person importing a hazardous material into the United States, providing the shipper with timely and complete information as to the HMR requirements that will apply to the transportation of the material within the United States.

(11) Certifying that a hazardous material is in proper condition for transportation in conformance with the requirements of the HMR.

(12) Loading, blocking, and bracing a hazardous materials package in a freight container or transport vehicle.

(13) Segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo.

(14) Selecting, providing, or affixing placards for a freight container or transport vehicle to indicate that it contains a hazardous material.

(c) *Transportation functions*. Requirements in the HMR apply to transportation of a hazardous material in commerce and to each person who transports a hazardous material in commerce, including each person under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal government who transports a hazardous material in commerce. Transportation of a hazardous material in commerce begins when a carrier takes physical possession of the hazardous material for the purpose of transporting it and continues until the package containing the hazardous material is delivered to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a rail car, until the car is delivered to a private track or siding. For a private motor carrier, transportation of a hazardous material in commerce begins when a motor vehicle driver takes possession of a hazardous

material for the purpose of transporting it and continues until the driver relinquishes possession of the package containing the hazardous material at its destination and is no longer responsible for performing functions subject to the HMR with respect to that particular package. Transportation of a hazardous material in commerce includes the following:

(1) *Movement.* Movement of a hazardous material by rail car, aircraft, motor vehicle, or vessel (except as delegated by Department of Homeland Security Delegation No. 0170 at 2(103)).

(2) *Loading incidental to movement of a hazardous material.* Loading of packaged or containerized hazardous material onto a transport vehicle, aircraft, or vessel for the purpose of transporting it, including blocking and bracing a hazardous materials package in a freight container or transport vehicle, and segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo, when performed by carrier personnel or in the presence of carrier personnel. For a bulk packaging, loading incidental to movement is filling the packaging with a hazardous material for the purpose of transporting it when performed by carrier personnel or in the presence of carrier personnel (except as delegated by Department of Homeland Security Delegation No. 0170 at 2(103)), including transloading.

(3) *Unloading incidental to movement of a hazardous material.* Removing a package or containerized hazardous material from a transport vehicle, aircraft, or vessel; or for a bulk packaging, emptying a hazardous material from the bulk packaging after the hazardous material has been delivered to the consignee when performed by carrier personnel or in the presence of carrier personnel or, in the case of a private motor carrier, while the driver of the motor vehicle from which the hazardous material is being unloaded immediately after movement is completed is present during the unloading operation. (Emptying a hazardous material from a bulk packaging while the packaging is on board a vessel is subject to separate regulations as delegated by Department of Homeland Security Delegation No. 0170 at 2(103).)

Unloading incidental to movement includes transloading.

(4) *Storage incidental to movement of a hazardous material.* Storage of a transport vehicle, freight container, or package containing a hazardous material by any person between the time that a carrier takes physical possession of the hazardous material for the purpose of transporting it until the package containing the hazardous material has been delivered to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a private motor carrier, between the time that a motor vehicle driver takes physical possession of the hazardous material for the purpose of transporting it until the driver relinquishes possession of the package at its destination and is no longer responsible for performing functions subject to the HMR with respect to that particular package.

(i) Storage incidental to movement includes—

(A) Storage at the destination shown on a shipping document, including storage at a transloading facility, provided the original shipping documentation identifies the shipment as a through-shipment and identifies the final destination or destinations of the hazardous material; and

(B) A rail car containing a hazardous material that is stored on track that does not meet the definition of “private track or siding” in §171.8, even if the car has been delivered to the destination shown on the shipping document.

(ii) Storage incidental to movement does not include storage of a hazardous material at its final destination as shown on a shipping document.

(d) *Functions not subject to the requirements of the HMR.* The following are examples of activities to which the HMR do not apply:

(1) Storage of a freight container, transport vehicle, or package containing a hazardous material at an offeror facility prior to a carrier taking possession of the hazardous material for movement in transportation in commerce or, for a private motor carrier, prior to a motor vehicle driver

taking physical possession of the hazardous material for movement in transportation in commerce.

(2) Unloading of a hazardous material from a transport vehicle or a bulk packaging performed by a person employed by or working under contract to the consignee following delivery of the hazardous material by the carrier to its destination and departure from the consignee’s premises of the carrier’s personnel or, in the case of a private carrier, departure of the driver from the unloading area.

(3) Storage of a freight container, transport vehicle, or package containing a hazardous material after its delivery by a carrier to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a rail car, storage of a rail car on private track.

(4) Rail and motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road or is on track that is part of the general railroad system of transportation, unless access to the public road is restricted by signals, lights, gates, or similar controls.

(5) Transportation of a hazardous material in a motor vehicle, aircraft, or vessel operated by a Federal, state, or local government employee solely for noncommercial Federal, state, or local government purposes.

(6) Transportation of a hazardous material by an individual for non-commercial purposes in a private motor vehicle, including a leased or rented motor vehicle.

(7) Any matter subject to the postal laws and regulations of the United States.

(e) *Requirements of other Federal agencies.* Each facility at which pre-transportation or transportation functions are performed in accordance with the HMR may be subject to applicable standards and regulations of other Federal agencies.

(f) *Requirements of state and local government agencies.* (1) Under 49 U.S.C. 5125, a requirement of a state, political subdivision of a state, or an Indian tribe is preempted, unless otherwise

authorized by another Federal statute or DOT issues a waiver of preemption, if—

(i) Complying with both the non-Federal requirement and Federal hazardous materials transportation law, the regulations issued under Federal hazardous material transportation law or a hazardous material transportation security regulation or directive issued by the Secretary of Homeland Security is not possible;

(ii) The non-Federal requirement, as applied or enforced, is an obstacle to accomplishing and carrying out Federal hazardous materials transportation law, the regulations issued under Federal hazardous material transportation law, or a hazardous material transportation security regulation or directive issued by the Secretary of Homeland Security;

(iii) The non-Federal requirement is not substantively the same as a provision of Federal hazardous materials transportation law, the regulations issued under Federal hazardous material transportation law, or a hazardous material transportation security regulation or directive issued by the Secretary of Homeland Security with respect to—

(A) The designation, description, and classification of hazardous material;

(B) The packing, repacking, handling, labeling, marking, and placarding of hazardous material;

(C) The preparation, execution, and use of shipping documents related to hazardous material and requirements related to the number, contents, and placement of those documents;

(D) The written notification, recording, and reporting of the unintentional release of hazardous material; or

(E) The design, manufacturing, fabricating, marking, maintenance, reconditioning, repairing, or testing of a package or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

(iv) A non-Federal designation, limitation or requirement on highway routes over which hazardous material may or may not be transported does not comply with the regulations in subparts C and D of part 397 of this title; or

(v) A fee related to the transportation of a hazardous material is not fair or is used for a purpose that is not related to transporting hazardous material, including enforcement and planning, developing, and maintaining a capability for emergency response.

(2) Subject to the limitations in paragraph (f)(1) of this section, each facility at which functions regulated under the HMR are performed may be subject to applicable laws and regulations of state and local governments and Indian tribes.

(3) The procedures for DOT to make administrative determinations of preemption are set forth in subpart E of part 397 of this title with respect to non-Federal requirements on highway routing (paragraph (f)(1)(iv) of this section) and in subpart C of part 107 of this chapter with respect to all other non-Federal requirements.

(g) *Penalties for noncompliance.* Each person who knowingly violates a requirement of the Federal hazardous material transportation law, an order issued under Federal hazardous material transportation law, subchapter A of this chapter, or a special permit or approval issued under subchapter A or C of this chapter is liable for a civil penalty of not more than \$75,000 for each violation, except the maximum civil penalty is \$175,000 if the violation results in death, serious illness or severe injury to any person or substantial destruction of property. There is no minimum civil penalty, except for a minimum civil penalty of \$450 for a violation relating to training.

[68 FR 61937, Oct. 30, 2003; 70 FR 20031, Apr. 15, 2005, as amended at 70 FR 73162, Dec. 9, 2005; 71 FR 8488, Feb. 17, 2006; 71 FR 44931, Aug. 8, 2006; 74 FR 68702, Dec. 29, 2009; 75 FR 53596, Sept. 1, 2010; 78 FR 22800, Apr. 17, 2013]

§ 171.2 General requirements.

(a) Each person who performs a function covered by this subchapter must perform that function in accordance with this subchapter.

(b) Each person who offers a hazardous material for transportation in commerce must comply with all applicable requirements of this subchapter, or an exemption or special permit, approval, or registration issued under this subchapter or under subchapter A

of this chapter. There may be more than one offeror of a shipment of hazardous materials. Each offeror is responsible for complying with the requirements of this subchapter, or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter, with respect to any pre-transportation function that it performs or is required to perform; however, each offeror is responsible only for the specific pre-transportation functions that it performs or is required to perform, and each offeror may rely on information provided by another offeror, unless that offeror knows or, a reasonable person, acting in the circumstances and exercising reasonable care, would have knowledge that the information provided by the other offeror is incorrect.

(c) Each person who performs a function covered by or having an effect on a specification or activity prescribed in part 178, 179, or 180 of this subchapter, an approval issued under this subchapter, or an exemption or special permit issued under subchapter A of this chapter, must perform the function in accordance with that specification, approval, an exemption or special permit, as appropriate.

(d) No person may offer or accept a hazardous material for transportation in commerce or transport a hazardous material in commerce unless that person is registered in conformance with subpart G of part 107 of this chapter, if applicable.

(e) No person may offer or accept a hazardous material for transportation in commerce unless the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized by applicable requirements of this subchapter or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter.

(f) No person may transport a hazardous material in commerce unless the hazardous material is transported in accordance with applicable requirements of this subchapter, or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter. Each

carrier who transports a hazardous material in commerce may rely on information provided by the offeror of the hazardous material or a prior carrier, unless the carrier knows or, a reasonable person, acting in the circumstances and exercising reasonable care, would have knowledge that the information provided by the offeror or prior carrier is incorrect.

(g) No person may represent, mark, certify, sell, or offer a packaging or container as meeting the requirements of this subchapter governing its use in the transportation of a hazardous material in commerce unless the packaging or container is manufactured, fabricated, marked, maintained, reconditioned, repaired, and retested in accordance with the applicable requirements of this subchapter. No person may represent, mark, certify, sell, or offer a packaging or container as meeting the requirements of an exemption, a special permit, approval, or registration issued under this subchapter or subchapter A of this chapter unless the packaging or container is manufactured, fabricated, marked, maintained, reconditioned, repaired, and retested in accordance with the applicable requirements of the exemption, special permit, approval, or registration issued under this subchapter or subchapter A of this chapter. The requirements of this paragraph apply whether or not the packaging or container is used or to be used for the transportation of a hazardous material.

(h) The representations, markings, and certifications subject to the prohibitions of paragraph (g) of this section include:

(1) Specification identifications that include the letters "ICC", "DOT", "CTC", "MC", or "UN";

(2) Exemption, special permit, approval, and registration numbers that include the letters "DOT", "EX", "M", or "R"; and

(3) Test dates associated with specification, registration, approval, retest, exemption, or special permit markings indicating compliance with a test or retest requirement of the HMR, or an exemption, special permit, approval, or registration issued under the HMR or under subchapter A of this chapter.

(i) No person may certify that a hazardous material is offered for transportation in commerce in accordance with the requirements of this subchapter unless the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized by applicable requirements of this subchapter or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter. Each person who offers a package containing a hazardous material for transportation in commerce in accordance with the requirements of this subchapter or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter, must assure that the package remains in condition for shipment until it is in the possession of the carrier.

(j) No person may, by marking or otherwise, represent that a container or package for transportation of a hazardous material is safe, certified, or in compliance with the requirements of this chapter unless it meets the requirements of all applicable regulations issued under Federal hazardous material transportation law.

(k) No person may, by marking or otherwise, represent that a hazardous material is present in a package, container, motor vehicle, rail car, aircraft, or vessel if the hazardous material is not present.

(l) No person may alter, remove, deface, destroy, or otherwise unlawfully tamper with any marking, label, placard, or description on a document required by Federal hazardous material transportation law or the regulations issued under Federal hazardous material transportation law. No person may alter, deface, destroy, or otherwise unlawfully tamper with a package, container, motor vehicle, rail car, aircraft, or vessel used for the transportation of hazardous materials.

(m) No person may falsify or alter an exemption or special permit, approval, registration, or other grant of authority issued under this subchapter or subchapter A of this chapter. No person may offer a hazardous material for transportation or transport a hazardous material in commerce under an

exemption or special permit, approval, registration or other grant of authority issued under this subchapter or subchapter A of this chapter if such grant of authority has been altered without the consent of the issuing authority. No person may represent, mark, certify, or sell a packaging or container under an exemption or special permit, approval, registration or other grant of authority issued under this subchapter or subchapter A of this chapter if such grant of authority has been altered without the consent of the issuing authority.

[68 FR 61937, Oct. 30, 2003, as amended at 70 FR 43643, July 28, 2005; 70 FR 73162, Dec. 9, 2005]

§ 171.3 Hazardous waste.

(a) No person may offer for transportation or transport a hazardous waste (as defined in §171.8 of this subchapter) in interstate or intrastate commerce except in accordance with the requirements of this subchapter.

(b) No person may accept for transportation, transport, or deliver a hazardous waste for which a manifest is required unless that person:

(1) Has marked each motor vehicle used to transport hazardous waste in accordance with §390.21 of this title even though placards may not be required;

(2) Complies with the requirements for manifests set forth in §172.205 of this subchapter; and

(3) Delivers, as designated on the manifest by the generator, the entire quantity of the waste received from the generator or a transporter to:

(i) The designated facility or, if not possible, to the designated alternate facility;

(ii) The designated subsequent carrier; or

(iii) A designated place outside the United States.

NOTE: Federal law specifies penalties up to \$250,000 fine for an individual and \$500,000 for a company and 5 years imprisonment for the willful discharge of hazardous waste at other than designated facilities. 49 U.S.C. 5124.

(c) If a discharge of hazardous waste or other hazardous material occurs during transportation, and an official of a State or local government or a

Federal agency, acting within the scope of his official responsibilities, determines that immediate removal of the waste is necessary to prevent further consequence, that official may authorize the removal of the waste without the preparation of a manifest. [NOTE: In such cases, EPA does not require carriers to have EPA identification numbers.]

NOTE 1: EPA requires shippers (generators) and carriers (transporters) of hazardous wastes to have identification numbers which must be displayed on hazardous waste manifests. See 40 CFR parts 262 and 263. (Identification number application forms may be obtained from EPA regional offices.)

NOTE 2: In 40 CFR part 263, the EPA sets forth requirements for the cleanup of releases of hazardous wastes.

[Amdt. 171-53, 45 FR 34586, May 22, 1980, as amended by Amdt. 171-53, 45 FR 74648, Nov. 10, 1980; Amdt. 171-78, 49 FR 10510, Mar. 20, 1984; Amdt. 171-107, 54 FR 40068, Sept. 29, 1989; Amdt. 171-111, 55 FR 52466, Dec. 21, 1990; 56 FR 66157, Dec. 20, 1991; Amdt. 171-2, 59 FR 49132, Sept. 26, 1994; Amdt. 171-141, 61 FR 21102, May 9, 1996; 73 FR 57004, Oct. 1, 2008]

§ 171.4 Marine pollutants.

(a) Except as provided in paragraph (c) of this section, no person may offer for transportation or transport a marine pollutant, as defined in §171.8, in intrastate or interstate commerce except in accordance with the requirements of this subchapter.

(b) The requirements of this subchapter for the transportation of marine pollutants are based on the provisions of Annex III of the 1973 International Convention for Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 73/78).

(c) *Exceptions.* Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft.

[Amdt. 171-116, 57 FR 52934, Nov. 5, 1993, as amended by Amdt. 107-39, 61 FR 51337, Oct. 1, 1996; 73 FR 4712, Jan. 28, 2008]

§ 171.6 Control numbers under the Paperwork Reduction Act.

(a) *Purpose and scope.* This section collects and displays the control numbers assigned to the HMR collections of

information by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995. This section complies with the requirements of 5 CFR 1320.7(f), 1320.12, 1320.13 and 1320.14 (OMB regulations implementing the Paperwork Reduction Act of 1995) for the display of control numbers assigned by OMB to collections of information of the HMR.

(b) *OMB control numbers.* The table in paragraph (b)(2) of this section sets forth the control numbers assigned to

collection of information in the HMR by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995.

(1) Column 1 lists the OMB control number assigned to the HMR collections of information. Column 2 contains the Report Title of the approved collection of information. Column 3 lists the part(s) or section(s) in 49 CFR identified or described in the collection of information.

(2) Table.

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0014	Cargo Tank Specification Requirements	§§ 107.503, 107.504, 178.320, 178.337, 178.338, 178.345, 180.407, 180.409, 180.413, 180.417.
2137-0018	Inspection and Testing of Portable Tanks and Intermediate Bulk Containers.	§§ 173.24, 173.32, 178.3, 178.255, 178.273, 178.274, 178.703, 178.801, 180.352, 180.605.
2137-0022	Testing, Inspection, and Marking Requirements for Cylinders.	§§ 173.5b, 173.302a, 173.303, 173.304, 173.309, 178.2, 178.3, 178.35, 178.44, 178.45, 178.46, 178.57, 178.59, 178.60, 178.61, 178.68, 180.205, 180.207, 180.209, 180.211, 180.213, 180.215, 180.217, appendix C to part 180.
2137-0034	Hazardous Materials Shipping Papers and Emergency Response Information.	§§ 172.200, 172.201, 172.202, 172.203, 172.204, 172.505, 172.600, 172.602, 172.604, 172.606, 173.6, 173.7, 173.22, 173.56, 174.24, 174.26, 174.114, 175.30, 175.31, 175.33, 176.24, 176.27, 176.30, 176.36, 176.89, 177.817.
2137-0039	Hazardous Materials Incidents Reports	§§ 171.15, 171.16, 171.21.
2137-0051	Rulemaking and Special Permit Petitions	§§ 105.30, 105.40, 106.95, 106.110, 107.105, 107.107, 107.109, 107.113, 107.117, 107.121, 107.123, 107.125, 107.205, 107.211, 107.215, 107.217, 107.219, 107.221, 107.223.
2137-0510	RAM Transportation Requirements	Part 173, subpart I, §§ 173.22, 173.411, 173.415, 173.416, 173.417, 173.457, 173.471, 173.472, 173.473, 173.476.
2137-0542	Flammable Cryogenic Liquids	§§ 173.318, 177.816, 177.840, 180.405.
2137-0557	Approvals for Hazardous Materials	§§ 107.402, 107.403, 107.405, 107.502, 107.503, 107.705, 107.713, 107.715, 107.717, 107.803, 107.805, 107.807, 110.30, 172.101, 172.102, Special Provisions 19, 26, 53, 55, 60, 105, 118, 121, 125, 129, 131, 133, 136, B45, B55, B61, B69, B77, B81, N10, N72, 173.2a, 173.4, 173.7, 173.21, 173.22, 173.24, 173.31, 173.38, 173.51, 173.56, 173.58, 173.59, 173.124, 173.128, 173.159, 173.166, 173.171, 173.214, 173.222, 173.224, 173.225, 173.245, 173.301, 173.305, 173.306, 173.314, 173.315, 173.316, 173.318, 173.334, 173.340, 173.411, 173.433, 173.457, 173.471, 173.472, 173.476, 174.50, 174.63, 175.8, 175.85, 175.701, 175.703, 176.168, 176.340, 176.704, 178.3, 178.35, 178.47, 178.53, 178.273, 178.274, 178.503, 178.509, 178.605, 178.606, 178.608, 178.801, 178.813, 180.213.

Pipeline and Haz. Matls. Safety Admin., DOT

§ 171.7

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0559	(Rail Carriers and Tank Car Tank Requirements) Requirements for Rail Tank Car Tanks—Transportation of Hazardous Materials by Rail.	§§ 172.102, Special provisions: B45, B46, B55, B61, B69, B77, B78, B81; 173.10, 173.31, 174.20, 174.50, 174.63, 174.104, 174.114, 174.204, 179.3, 179.4, 179.5, 179.6, 179.7, 179.11, 179.18, 179.22, 179.100-9, 179.100-12, 179.100-13, 179.100-16, 179.100-17, 179.102-4, 179.102-17, 179.103-1, 179.103-2, 179.103-3, 179.103-5, 179.200-10, 179.200-14, 179.200-15, 179.200-16, 179.200-17, 179.200-19, 179.201-3, 179.201-8, 179.201-9, 179.220-4, 179.220-7, 179.220-8, 179.220-13, 179.220-15, 179.220-17, 179.220-18, 179.220-20, 179.220-22, 179.300-3, 179.300-7, 179.300-9, 179.300-12, 179.300-13, 179.300-15, 179.300-20, 179.400-3, 179.400-4, 179.400-11, 179.400-13, 179.400-16, 179.400-17, 179.400-19, 179.400-20, 179.500-5, 179.500-8, 179.500-12, 179.500-18, 180.505, 180.509, 180.515, 180.517.
2137-0572	Testing requirements for non-bulk packages	§§ 173.168, 178.2, 178.601, appendix C to part 178, appendix D to part 178.
2137-0582	Container Certification Statement	§§ 176.27, 176.172.
2137-0586	Hazardous Materials Public Sector Training and Planning Grants.	Part 110.
2137-0591	Response Plans for Shipments of Oil	Part 130.
2137-0595	Cargo Tank Motor Vehicles in Liquefied Compressed Gas Service.	§§ 173.315, 178.337-8, 178.337-9, 180.405, 180.416.
2137-0612	Hazardous Materials Security Plans	Part 172, subpart I, §§ 172.800, 172.802, 172.804.
2137-0613	Subsidiary Hazard Class and Number/Type of Packagings.	§§ 172.202, 172.203
2137-0620	Inspection and Testing of Meter Provers	Part 173, subpart A, § 173.5a.
2137-0621	Requirements for United Nations (UN) Cylinders	§§ 173.301, 173.304, 173.304b, 178.69, 178.70, 178.74, 178.75, 180.207, 180.209, 180.212, 180.215, 180.217.

[Amdt. 171-111, 56 FR 66157, Dec. 20, 1991]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 171.6, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 171.7 Reference material.

(a) *Matter incorporated by reference*—
 (1) *General*. There is incorporated, by reference in parts 171-180 of this subchapter, matter referred to that is not specifically set forth. This matter is hereby made a part of the regulations in parts 171-180 of this subchapter. The matter subject to change is incorporated only as it is in effect on the date of issuance of the regulation referring to that matter. The material listed in paragraphs (b) through (bb) of this section has been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Material is incorporated as it exists on the date of the approval and a notice of any change in the material will be published in the FEDERAL REG-

ISTER. Matters referenced by footnote are included as part of the regulations of this subchapter.

(2) *Accessibility of materials*. All incorporated matter is available for inspection at:

(i) The Office of Hazardous Materials Safety, Office of Hazardous Materials Standards, East Building, PHH-10, 1200 New Jersey Avenue SE., Washington, DC 20590-0001. For information on the availability of this material at PHH-10, call 1-800-467-4922, or go to: <http://www.phmsa.dot.gov>; and

(ii) The National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/



Federal Permitting and Oversight of Export of Fossil Fuels

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Summary

Recent technological developments have led to an increase in the domestic supply of natural gas. As a result, there is interest among some parties in exporting liquefied natural gas (LNG) to take advantage of international markets. This has placed new attention on the laws and regulations governing the export of natural gas as well as other fossil fuels.

In most cases, export of fossil fuels requires federal authorization of both the act of exporting the fuel and the facility that will be employed to export the fuel. For example, the export of natural gas is permitted by the Department of Energy's Office of Fossil Energy, while the construction and operation of the export facility must be authorized by the Federal Energy Regulatory Commission (FERC). Oil exports are generally forbidden, but an export that falls under one of several exemptions to the ban can be authorized by the Department of Commerce's Bureau of Industry and Security, while oil pipelines that cross international borders must be permitted by the State Department. Coal exports do not require special authorization specific to the commodity; however, as with natural gas and crude oil, other generally applicable federal statutes and regulations may apply to the export of coal.

Restrictions on exports of fossil fuels could potentially have implications under international trade rules. They may possibly be inconsistent with the most favored nation requirement of Article I of the General Agreement on Tariffs and Trade 1994 (GATT 1994) if certain World Trade Organization (WTO) members are treated differently than others. Limits on exports could also potentially violate the prohibition on export restrictions contained in Article XI of the GATT 1994 if they prescribe vague and unspecified criteria for export licensing. However, an export licensing regime does not appear to constitute a "subsidy" to downstream users of fossil fuels under WTO rules.

Article XXI, the exception for essential security interests, may provide justification for potential violations of GATT Articles I and XI. The United States has traditionally considered this exception to be self-judging. However, it is possible that a panel or the Appellate Body might scrutinize the United States' use of the exception.

Article XX of the GATT provides additional exceptions that a member country may invoke if it is found to be in violation of any GATT obligations. For example, WTO Members may maintain an otherwise GATT inconsistent measure if it is necessary to protect an exhaustible natural resource or necessary to protect human health or the environment. Article XIII requires that if an otherwise GATT inconsistent measure is permitted to remain in force due to an Article XX exception, the measure must be administered in a non-discriminatory manner. Export restrictions that treat WTO Members differently would appear not to satisfy the non-discriminatory requirements of Article XIII.

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Contents

Introduction.....	1
Generally Applicable Export Requirements	1
Statutes Governing Authorization to Export Fossil Fuels.....	2
Crude Oil	2
Natural Gas/LNG.....	2
Coal	4
Export Facility Authorization	4
Oil Pipeline Border Crossings	5
Natural Gas Pipeline Border Crossings	6
LNG Export Terminals	7
World Trade Organization—General Agreement on Tariffs and Trade	8
Article I—Most Favored Nation Treatment	8
Article XI—Export Restrictions	9
Articles VI, XVI, and the Agreement on Subsidies and Countervailing Measures— Export Restraints as Actionable Subsidies	10
Articles XX and XIII—General Exceptions.....	10
Article XXI—Security Exceptions.....	11
NAFTA and Other Free Trade Agreements.....	12
Pending Legislation	12
Conclusion.....	13
Contacts	
Author Contact Information.....	14

Introduction

Partly as a result of the increased use of horizontal drilling and hydraulic fracturing to extract natural gas from shale formations in the United States, the domestic supply of natural gas has increased relative to demand, leading to lower domestic prices. This has generated increased interest by some U.S. companies in exporting liquefied natural gas (LNG) to take advantage of relatively higher prices in world markets.¹ This new interest in exporting natural gas has also produced renewed interest in the laws and regulations governing the export of other fossil fuels, including crude oil, natural gas, and coal.²

This report reviews federal laws and the regulatory regime governing the export of natural gas, crude oil, and coal. This report provides an overview of federal laws and regulations and agency roles in authorizing and regulating the export of these fossil fuels. The report addresses several categories of federal laws and regulations, including (1) statutes that establish the authorization process for the actual export of any of the three listed fossil fuels; (2) statutes that govern the permitting of the facilities that export any of the listed fossil fuels; and (3) generally applicable trade statutes and treaties that affect exports of fossil fuels.

Generally Applicable Export Requirements

In general, transactions involving the export of items from the United States to a foreign country are subject to the Export Administration Regulations (EAR) enforced by the Department of Commerce’s Bureau of Industry and Security (BIS).³ However, transactions that fall within the scope of the EAR do not necessarily require an export license from BIS.⁴ Whether an export license is required depends on several factors, including the nature of the item, its end use, and its ultimate destination.⁵ The EAR provides instructions for exporters to follow when determining whether an export transaction is subject to the EAR and, if so, whether the transaction requires a license.⁶

Other general requirements may apply to transactions involving the export of items from the United States. For example, for exports of items subject to the EAR that do not take place electronically or in another intangible form, an exporter is required in certain circumstances to submit a Shipper’s Export Declaration (SED) or Automated Export System (AES) Record to BIS and the International Trade Administration in the Department of Commerce’s Bureau of the Census.⁷ A declaration or record typically contains an identification of the exporter and the

¹ For more information about the potential for natural gas exports, see CRS Report R42074, *U.S. Natural Gas Exports: New Opportunities, Uncertain Outcomes*, by Michael Ratner et al.

² For more information about the potential for crude exports, see CRS Report R42465, *U.S. Oil Imports and Exports*, by Robert Pirog.

³ Export transactions that fall within the exclusive jurisdiction of another federal agency are not subject to the EAR. 15 C.F.R. Part 734. In some cases, more than one federal agency may be responsible for exercising oversight over the export of a particular item.

⁴ 15 C.F.R. Part 732.

⁵ *Id.*

⁶ *Id.*

⁷ 15 C.F.R. Parts 30 and 758. The Bureau of Census uses the SED or AES to compile trade statistics. 15 C.F.R. §758.1. BIS uses the records for export control purposes. *Id.* Circumstances in which an SED or AES record is required to be (continued...)

commodity being shipped; the date of exportation; and the country of ultimate destination, among other information.⁸

Statutes Governing Authorization to Export Fossil Fuels

Crude Oil

The Energy Policy and Conservation Act of 1975⁹ directed the President to “promulgate a rule prohibiting the export of crude oil and natural gas produced in the United States, except that the President may ... exempt from such prohibition such crude oil or natural gas exports which he determines to be consistent with the national interest and the purposes of this chapter.”¹⁰ The act further provides that the exemptions to the prohibition should be “based on the purpose for export, class of seller or purchaser, country of destination, or any other reasonable classification or basis as the President determines to be appropriate and consistent with the national interest and the purposes of this chapter.”¹¹

This general prohibition on crude oil exports and the exemptions to that prohibition are found in the BIS regulations on Short Supply Controls at 15 C.F.R. §754.2. The regulations provide that a license must be obtained for all exports of crude oil, including those to Canada.¹² The regulations further provide that BIS will issue licenses for certain crude oil exports that fall under one of the listed exemptions, including (i) exports from Alaska’s Cook Inlet; (ii) exports to Canada for consumption or use therein; (iii) exports in connection with refining or exchange of strategic petroleum reserve oil; (iv) exports of heavy California crude oil up to an average volume not to exceed 25 million barrels per day; (v) exports that are consistent with certain international agreements; (vi) exports that are consistent with findings made by the President under certain statutes; and (vii) exports of foreign origin crude oil where, based on satisfactory written documentation, the exporter can demonstrate that the oil is not of U.S. origin and has not been commingled with oil of U.S. origin.¹³ BIS administers crude oil licensing under these provisions.

Natural Gas/LNG

Section 3 of the Natural Gas Act (NGA) provides that “no person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country

(...continued)

submitted for the export of items subject to the EAR include when the items are destined for certain countries; when the export of the items requires submission of a license application under the EAR; and when the value of the exported commodities classified under a single Schedule B Number (or Harmonized Tariff Schedule number) exceeds \$2,500.

Id. Certain exceptions may apply. *See id.*

⁸ U.S. Department of Commerce, A Basic Guide to Exporting 75 (1998).

⁹ P.L. 94-163.

¹⁰ 42 U.S.C. §6212(b)(1).

¹¹ *Id.* at §6212(b)(2).

¹² 15 C.F.R. §754.2(a).

¹³ *Id.* at §754.2(b).

without having first secured an order of the Commission authorizing it to do so.”¹⁴ This authorization is to be issued “unless, after opportunity for hearing, [the Commission] finds that the proposed exportation or importation will not be consistent with the public interest.”¹⁵ The Commission is further empowered to grant authorizations in part and to modify or place terms and conditions upon authorizations and to supplement its orders as appropriate.¹⁶

At the time of the NGA’s enactment in 1938, the “Commission” referred to the Federal Power Commission. However, in 1977 the Federal Power Commission was dissolved and its responsibilities were transferred to the Department of Energy (DOE) as well as the Federal Energy Regulatory Commission (FERC), an independent agency operating within DOE, pursuant to the Department of Energy Organization Act.¹⁷ Title III of this act transferred all functions of the Federal Power Commission to DOE except for those subsequently assigned to FERC in Title IV.¹⁸

Title III of the DOE Organization Act thus transferred the authority to authorize natural gas imports and exports from the Federal Power Commission to DOE. Title IV provides added clarity on this point. Section 402(f) of the act specifically states that “[n]o function ... which regulates the exports or imports of natural gas or electricity shall be within the jurisdiction of [FERC] unless the Secretary assigns such functions to [FERC].”¹⁹

Natural gas exporting responsibilities are handled by the Office of Fossil Energy within DOE. The procedures for filing for authorization to import or export natural gas are set forth in DOE regulations found at 10 C.F.R. Part 590. The regulations establish filing requirements as well as the procedures for review of applications, including procedures that allow interested parties to participate in the process prior to the issuance of orders by DOE. The regulations also provide for an expedited filing and review process for one-time small volume imports and exports for “scientific, experimental or other non-utility gas use” without necessitating a permit.²⁰

The Energy Policy Act of 1992²¹ amended the NGA Section 3 generic requirement for a permit in order to export natural gas to create a more streamlined authorization process for imports from and exports to certain countries. Subsection (c) of Section 3 provides that the importation of natural gas from or exportation of natural gas to a country with which the United States has in effect “a free trade agreement requiring national treatment for trade in natural gas shall be deemed to be consistent with the public interest, and applications for such importation and exportation shall be granted without modification or delay.”²² This provision eased the authorization process

¹⁴ 15 U.S.C. §717b(a). This prohibition on natural gas exports without a determination from the executive branch that the national or public interest echoes the language found in the Energy Policy and Conservation Act of 1975, discussed above. The DOE regulations at 10 CFR. Part 590 cite to both acts as authority for the regulations governing export permitting.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ P.L. 95-91.

¹⁸ *Id.* at §301.

¹⁹ 42 U.S.C. §7172(f).

²⁰ 10 C.F.R. §590.208.

²¹ P.L. 102-486.

²² 15 U.S.C. §717b(c).

for certain countries in the interest of free trade, including Canada and Mexico, the only countries with whom natural gas importation and exportation takes place via pipeline.

Section 3 of the NGA also protects the role of the states in the permitting decisions. State rights under various environmental statutes are protected with respect to both export authorization by DOE and permitting by FERC (discussed *infra*) in Section 3(d),²³ and Section 3(e) mandates the notification of relevant state authorities in order to gather their input during the process.²⁴

Coal

Although the Energy Policy and Conservation Act of 1975 authorized the President to restrict coal exports,²⁵ the President does not appear to have exercised this authority to impose any significant export restrictions specific to coal. In fact, there have been legislative efforts aimed at expanding coal exports. For example, Section 1338 of the Energy Policy Act of 1992 directed the Secretary of Commerce to create a plan for expanding coal exports.²⁶ Almost all U.S. coal exports pass through ports on the East Coast or in the Gulf of Mexico,²⁷ so laws and regulations applicable to such facilities would potentially affect coal exports. Such laws and regulations are briefly discussed below.

Export Facility Authorization

The previous section of this report discusses federal authorization of the export of natural resources, not the construction and operation of export facilities. However, in many cases approval for the export facility itself also must be obtained from the federal government. This section discusses various approval requirements for different types of facilities that enable the export of oil and natural gas.

Note that, in addition to the facility approvals described below, a facility used in the export or import of fossil fuels may require additional federal approvals or authorizations. For instance, construction and operation of ports in any navigable waters in the United States are regulated by the U.S. Army Corps of Engineers (ACE). In order to construct any port facility, permits must be obtained from ACE, which will review applications to see that they are in compliance with the Clean Water Act,²⁸ the Rivers and Harbors Act,²⁹ and the Marine Protection Research and Sanctuaries Act.³⁰ Because coal is generally not exported via a special facility designed to transport the commodity, there are no special facility permitting requirements applicable to coal exports, but facilities through which coal (or any fossil fuel) may be exported must satisfy these generic federal requirements.

²³ *Id.* at §717b(d).

²⁴ *Id.* at §717b(e)(2).

²⁵ 42 U.S.C. §6212(a).

²⁶ 42 U.S.C. §13367.

²⁷ Energy Information Admin, Quarterly Coal Exports October-December 2012 (March 2013), Table 13: U.S. Coal Exports by Customs District, available at <http://www.eia.gov/coal/production/quarterly/pdf/t13p01p1.pdf>.

²⁸ 33 U.S.C. §1344.

²⁹ 33 U.S.C. §403.

³⁰ 33 U.S.C. §§1401 et. seq.

Oil Pipeline Border Crossings

Crude oil can be exported either by pipeline or via tanker or other vessel. If an oil pipeline crosses the border with Canada or Mexico, the border crossing facility must be authorized by the federal government.³¹ The executive branch exercises permitting authority over the construction and operation of “pipelines, conveyor belts, and similar facilities for the exportation or importation of petroleum, petroleum products” and other products pursuant to a series of executive orders. This authority has been vested in the U.S. State Department since the promulgation of Executive Order 11423 in 1968.³² Executive Order 13337 amended this authority and the procedures associated with the review, but did not substantially alter the exercise of authority or the delegation to the Secretary of State in Executive Order 11423.³³

Executive Order 11423 provides that, except with respect to cross-border permits for electric energy facilities, natural gas facilities, and submarine facilities:

The Secretary of State is hereby designated and empowered to receive all applications for permits for the construction, connection, operation, or maintenance, at the borders of the United States, of: (i) pipelines, conveyor belts, and similar facilities for the exportation or importation of petroleum, petroleum products, coal, minerals, or other products to or from a foreign country; (ii) facilities for the exportation or importation of water or sewage to or from a foreign country; (iii) monorails, aerial cable cars, aerial tramways and similar facilities for the transportation of persons or things, or both, to or from a foreign country; and (iv) bridges, to the extent that congressional authorization is not required.³⁴

Executive Order 13337 designates and empowers the Secretary of State to “receive all applications for Presidential Permits, as referred to in Executive Order 11423, as amended, for the construction, connection, operation, or maintenance, at the borders of the United States, of facilities for the exportation or importation of petroleum, petroleum products, coal, or other fuels to or from a foreign country.”³⁵ Executive Order 13337 further provides that after consideration of the application and comments received:

If the Secretary of State finds that issuance of a permit to the applicant would serve the national interest, the Secretary shall prepare a permit, in such form and with such terms and conditions as the national interest may in the Secretary’s judgment require, and shall notify the officials required to be consulted ... that a permit be issued.³⁶

Thus, the Secretary of State is directed by the order to authorize those border crossing facilities that the Secretary has determined would “serve the national interest.”

³¹ For tankers or other vessels conveying oil, the use of such facilities for exportation, in and of itself, does not require a permit akin to that required for oil pipelines that cross international borders. However, oil tankers or other such vessels must comply with other generally applicable export requirements, which are discussed elsewhere in this report.

³² Exec. Order No. 11423, *Providing for the performance of certain functions heretofore performed by the President with respect to certain facilities constructed and maintained on the borders of the United States*, 33 Fed. Reg. 11741. (August 20, 1968).

³³ Exec. Order No. 13337, *Issuance of Permits With Respect to Certain Energy-Related Facilities and Land Transportation Crossings on the International Boundaries of the United States*, 69 Fed. Reg. 25299 (May 5, 2004).

³⁴ Exec. Order No. 11423, 33 Fed. Reg. at 11741.

³⁵ Exec. Order No. 13337, 69 Fed. Reg. at 25299.

³⁶ *Id.* at 25230.

Note that the source of the executive branch’s permitting authority is not explicitly stated within the executive orders. Powers exercised by the executive branch are authorized by legislation or are inherent presidential powers based in the Constitution. Executive Order 11423 does not reference any statute or constitutional provision as the source of its authority, although it does state that “the proper conduct of foreign relations of the United States requires that executive permission be obtained for the construction and maintenance” of border crossing facilities.³⁷ Executive Order 13337 refers only to the “Constitution and the Laws of the United States of America, including Section 301 of title 3, United States Code.”³⁸ Section 301 of Title 3 provides that the President is empowered to delegate authority to the head of any department or agency of the executive branch. Courts that have addressed the legitimacy of this exercise of authority have found that it is a legitimate exercise of “the President’s constitutional authority over foreign affairs and his authority as Commander in Chief.”³⁹

Natural Gas Pipeline Border Crossings

As discussed above, Executive Orders 11423 and 13337 explicitly exclude cross-border natural gas pipelines (among others) from their reach. Instead, permitting for these facilities is addressed in Executive Order 10485, which governs the issuance of Presidential Permits for natural gas facilities.⁴⁰ Executive Order 10485 designates and empowers the now-defunct Federal Power Commission:

- (1) To receive all applications for permits for the construction, operation, maintenance, or connection, at the borders of the United States, of facilities for the transmission of electric energy between the United States and a foreign country.
- (2) To receive all applications for permits for the construction, operation, maintenance, or connection, at the borders of the United States, of facilities for the exportation or importation of natural gas to or from a foreign country.
- (3) Upon finding the issuance of the permit to be consistent with the public interest, and, after obtaining the favorable recommendations of the Secretary of State and the Secretary of Defense thereon, to issue to the applicant, as appropriate, a permit for such construction, operation, maintenance, or connection. The Secretary of Energy shall have the power to attach to the issuance of the permit and to the exercise of the rights granted thereunder such conditions as the public interest may in its judgment require.⁴¹

In many ways, this authority resembles the authority over oil pipelines granted to the State Department in Executive Orders 11423 and 13337. However, as mentioned above, Executive Orders 11423 and 13337 do not describe the source of the executive branch permitting authority granted by the orders. Judicial opinions strongly suggest the permitting authority is an exercise of the President’s “inherent constitutional authority to conduct foreign affairs.”⁴² By contrast,

³⁷ 33 Fed. Reg. at 11741.

³⁸ 69 Fed. Reg. at 25299.

³⁹ *Sierra Club v. Clinton*, 689 F. Supp. 2d 1147, 1162 (D. Minn. 2010).

⁴⁰ Exec. Order No. 10485, *Providing for the performance of certain functions heretofore performed by the President with respect to electric power and natural gas facilities located on the borders of the United States*, 18 Fed. Reg. 5397 (Sept. 3, 1953).

⁴¹ *Id.*

⁴² *Sisseton-Wahpeton Oyate v. U.S. Department of State*, 659 F. Supp. 2d 1071, 1081 (D.S.D. 2009).

Executive Order 10485 cites federal statutes which may at least partially form the basis for the permitting authority granted to the DOE by the order. The order states that “section 202(e) of the Federal Power Act, as amended ... requires any person desiring to transmit any electric energy from the United States to a foreign country to obtain an order from the Federal Power Commission authorizing it to do so” and that “section 3 of the Natural Gas Act ... requires any person desiring to export any natural gas from the United States to a foreign country or to import any natural gas from a foreign country to the United States to obtain an order from the Federal Power Commission authorizing it to do so.” These appeals to statutory authority should be considered and possibly addressed in any legislation seeking to amend the current Presidential Permit process for border crossings for energy facilities.

The Department of Energy Organization Act of 1977⁴³ eliminated the Federal Power Commission and transferred its functions to either the newly created DOE or the FERC, an independent regulatory agency within DOE. Section 402(f) of that act specifically reserved import/export permitting functions for DOE rather than FERC. As a result, DOE took over the FPC’s Presidential Permit authority for border crossing facilities under Executive Order 10485 pursuant to the act. The authority to issue Presidential Permits for natural gas pipeline border crossings was subsequently transferred to FERC in 2006 via DOE Delegation Order No. 00-004.00A.⁴⁴

LNG Export Terminals

Section 3(e) of the NGA, adopted in Section 311 of the Energy Policy Act of 2005,⁴⁵ assigns the “exclusive authority to approve or deny an application for the siting, expansion or operation of a Liquefied Natural Gas (LNG) terminal” to FERC.⁴⁶ Section 3 designates FERC as the “lead agency for the purposes of coordinating all applicable Federal authorizations” and for complying with federal environmental requirements.⁴⁷ Section 3(e) also directs FERC to promulgate regulations for pre-filing of LNG import terminal siting applications and directs FERC to consult with designated state agencies regarding safety in considering such applications.⁴⁸

FERC implements its authority over onshore LNG terminals through the agency’s regulations at 18 C.F.R. §153. These regulations detail the application process and requirements under Section 3 of the NGA. The process begins with a pre-filing, which must be submitted to FERC at least six months prior to the filing of a formal application. The pre-filing procedures and review processes are set forth at 18 C.F.R. §157.21. Once the pre-filing stage is completed, a formal application may be filed. FERC’s formal application requirements include detailed site engineering and design information, evidence that a facility will safely receive or deliver LNG, and delineation of a facility’s proposed location.⁴⁹ The regulations also require LNG facility builders to notify landowners who would be affected by the proposed facility.⁵⁰ To facilitate natural gas infrastructure projects, which includes LNG projects, FERC has adopted rules to provide “blanket

⁴³ P.L. 95-91, 42 U.S.C. §4101 note.

⁴⁴ Available at <http://www.ferc.gov/industries/electric/indus-act/siting/doe-delegation.pdf>.

⁴⁵ P.L. 109-58.

⁴⁶ 15 U.S.C. §717b(e). Gas must be converted to LNG for export by means other than pipeline.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ 18 C.F.R. §153.8.

⁵⁰ 18 C.F.R. §157.6d.

certificates” that provide authorization to interstate pipelines to improve or upgrade existing facilities or construct certain new facilities pursuant to a streamlined process.⁵¹

World Trade Organization—General Agreement on Tariffs and Trade

The Marrakesh Agreement Establishing the World Trade Organization (WTO) contains the agreements relating to international trade that are binding for all WTO Members. Although there is no specific agreement relating to trade in energy products, such as liquefied natural gas, coal, or oil, the trade in these products is regulated under the General Agreement on Tariffs and Trade (GATT). Several of these sections could potentially impact a nation’s ability to limit or restrict fossil fuels.

Article I—Most Favored Nation Treatment

Article I of the GATT 1994 requires that “any advantage, favour, privilege or immunity granted by any [WTO Member] to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other [WTO Members].”⁵² Article I applies to all rules and formalities in connection with importation and exportation.⁵³ This broad category of rules and formalities appears likely to include prerequisites for exportation such as licensing requirements or other preliminary measures.⁵⁴ More favorable treatment given to *imports* from particular countries in the context of *import* licensing requirements has been held to confer an advantage within the meaning of Article I.⁵⁵

Generally, this means that as soon as the United States provides for certain treatment of fossil fuel exports to one country, the United States has to treat exports to all other WTO Members in the same fashion. A licensing regime that provided for more favorable treatment for exports of fossil fuels to some countries, but subjected other WTO countries to a slower process could potentially be inconsistent with Article I of the GATT.

However, there are exceptions to the Most Favored Nation Treatment requirements for Free Trade Agreements (FTA). Article XXIV of GATT 1994 allows countries to provide more favorable treatment to countries with which they have established an FTA.⁵⁶ In order to qualify for the Article XXIV exception, the FTA must meet certain requirements outlined in the Article. Most

⁵¹ 18 C.F.R. §§157.201-157.218.

⁵² General Agreement on Tariffs and Trade 1994, Art. I:1 (hereinafter GATT 1994).

⁵³ *Id.*

⁵⁴ See Panel Report, *U.S.—Certain Measures Affecting Imports of Poultry from China*, paras. 7.407, 7.410, WT/DS392/R (September 29, 2010) (“We conclude that ‘in connection with importation’ as used in Article I, not only encompasses measures which directly relate to the process of importation but could also include those measures ... which relate to other aspects of the importation of a product or have an impact on actual importation.”). The same reasoning could apply to measures that have an impact on actual exportation, such as licensing requirements.

⁵⁵ Panel Report, *EC—Regime for the Importation, Sale, and Distribution of Bananas*, ¶ 7.193, WT/DS27/R/USA (May 22, 1997).

⁵⁶ GATT 1994, Art. XXIV.

notably, the free trade agreement must eliminate duties—such as tariffs—and restrictions on commerce between the parties to the agreement for “substantially all the trade in products originating in those territories.”⁵⁷ Therefore, in order for an agreement to qualify, it is likely that the FTA would have to cover more than just energy products flowing between the two territories. However, if the countries have a qualifying FTA, more favorable treatment towards energy products between those countries could be included in that FTA without violating the GATT.

Article XI—Export Restrictions

Article XI of the GATT covers import and export restrictions. Article XI:1 of the GATT bars the institution or maintenance of quantitative restrictions on exports to any WTO Member’s territory.⁵⁸ Quantitative restrictions limit the amount of a product that may be exported—common examples are embargoes, quotas, minimum export prices, and certain export licensing requirements. Under Article XI, duties, taxes, and other charges are the only GATT-consistent methods of restricting exports.⁵⁹ Any government action that expressly precludes the exportation of certain goods is inconsistent with the GATT.

Although there are few WTO panel decisions on export bans, panels have consistently found that *import* bans implemented through licensing systems violate Article XI.⁶⁰ This jurisprudence can be expected to inform any WTO panel decision on the GATT-consistency of export bans and licensing.⁶¹ WTO Panel decisions have also held that “discretionary” or “non-automatic” licensing requirements are prohibited under Article XI—therefore, a licensing program that gives discretion to an agency to deny an export license to potential exporters on the basis of vague or unspecified criteria would violate Article XI.⁶² Moreover, a GATT panel held that export licensing practices that cause delays in issuing licenses may be a restraint of exports that is inconsistent with Article XI.⁶³

⁵⁷ *Id.*

⁵⁸ GATT 1994, Art. XI:1 (“No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences [sic] or other measures, shall be instituted or maintained by any contracting party on the ... exportation or sale for export of any product destined for the territory of any other contracting party.”).

⁵⁹ *Id.*

⁶⁰ See Panel Report, *Brazil—Measures Affecting Imports of Retreaded Tyres*, WT/DS332/R (June 12, 2007) (holding a licensing system to be in violation of Article XI when a person would be ineligible to import tires based on where those tires came from); Panel Report, *India Quantitative Restrictions on Imports of Agricultural, Textile and Industrial Products*, WT/DS90/R (April 6, 1999).

⁶¹ See Wen-Chen Shih, *Energy Security, GATT/WTO, and Regional Agreements*, 49 Nat. Res. J. 433, 451 (2009) (noting that it is likely that “the jurisprudence concerning quantitative restrictions on import in the interpretation and application of Article XI:1 also applies to exports.”).

⁶² See Panel Report, *China—Measures Related to the Exportation of Various Raw Materials*, WT/DS394/R (July 5, 2011) (holding that vague export licensing criteria allowed for too much discretion in granting licenses and that they were therefore in violation of Article XI).

⁶³ Panel Report, *Japan—Trade in Semi-Conductors* (May 4, 1988) GATT B.I.S.D. (35th Supp.), 31.

Articles VI, XVI, and the Agreement on Subsidies and Countervailing Measures—Export Restraints as Actionable Subsidies

A fossil fuel export licensing regime that restricts exports could have the effect of keeping domestic prices of fossil fuels lower than they otherwise would be. This raises the question of whether such a licensing program could be considered an actionable subsidy to downstream users of the fossil fuels such as members of the petrochemical industry. Under the GATT 1994 and the Agreement on Subsidies and Countervailing Measures (SCM Agreement), an actionable subsidy may be the subject of countervailing measures or challenge before a panel by a WTO Member when the subsidy adversely affects the interests of that member.⁶⁴ Adverse effects might result if export restraints on fossil fuels lead to lower input costs for downstream manufacturers that use the fuels, giving the manufacturers' products a competitive edge over the products of the other members' manufacturers in domestic or foreign markets.

The SCM Agreement defines a “subsidy” as “a financial contribution by a government or any public body within the territory of a Member” that confers a benefit.⁶⁵ Under the agreement, one way that a “financial contribution” may occur is when a government directs a private body to sell goods to a domestic purchaser.⁶⁶ In *U.S.—Measures Treating Export Restraints as Subsidies*, the United States Trade Representative (USTR) argued before a WTO panel that a government's restriction on exports could be considered “functionally equivalent” to that government directing private parties to sell a good to domestic purchasers.⁶⁷ The USTR argued that this resulted in a subsidy to downstream producers that used the good as an input in their production processes.⁶⁸ The panel rejected this argument, stating that although a restriction on exports of a good may result in lower prices for domestic users of that good, the restriction was not an explicit command or direction by the government to private parties to sell the good within the meaning of the SCM Agreement.⁶⁹ This ruling suggests that future panels may be reluctant to find that a restriction on exports or a similar government intervention in a market is a “financial contribution” by a government. Thus, it seems unlikely that licensing procedures could constitute a subsidy under WTO rules, even if they lead to restrictions on exports.

Articles XX and XIII—General Exceptions

Article XX of the GATT provides for certain exceptions that a member country may invoke if it is found to be in violation of any GATT obligations. In order for the defense to be successful, the member country must show that its action fits under one of these general exceptions and that it satisfies Article XX's opening clauses, known as the “chapeau.”⁷⁰ When dealing with trade in

⁶⁴ GATT 1994, Arts. VI, XVI; SCM Agreement, Arts. V, VII, XI, XIX.

⁶⁵ SCM Agreement, Art. I.

⁶⁶ SCM Agreement, Art. I(a)(1)(iv).

⁶⁷ Panel Report, *United States—Measures Treating Export Restraints as Subsidies*, ¶ 8.22, WT/DS194/R (June 29, 2001).

⁶⁸ *Id.* at paras. 5.36, 5.48–51.

⁶⁹ *Id.* at ¶ 8.42–44.

⁷⁰ The “chapeau” requires, for example, that measures falling under these exceptions shall not be a disguised restriction on international trade. GATT 1994, Art. XX.

energy products, a country will most likely use the exceptions under Article XX(b) or XX(g). A country may justify a GATT inconsistent practice under Article XX(b) if the practice in question is “necessary to protect human, animal, or plant life or health.”⁷¹ Article XX(g) may permit otherwise GATT inconsistent measures that “relat[e] to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.”⁷² If a WTO Member invokes an Article XX exception to the application of any quantitative export restrictions, Article XIII requires that those export restrictions must be administered in a non-discriminatory manner—that is the restrictions must comport with the most-favored nation treatment discussed above.⁷³

Article XXI—Security Exceptions

Restrictions on fossil fuels for reasons of international or domestic security that would otherwise violate the GATT 1994 may potentially be justified under the broadly worded exception for essential security interests contained in Article XXI.⁷⁴ One paragraph of this article allows a member to take “any action which it considers necessary for the protection of its essential security interests ... taken in time of war or other emergency in international relations.”⁷⁵

Because there is a lack of WTO case law on Article XXI, it is necessary to consult the history of the exception's use under the General Agreement on Tariffs and Trade 1947 (GATT 1947). The GATT 1947 has been incorporated into the GATT 1994. Under the GATT 1947, the contracting parties broadly interpreted the concept of an “emergency.”⁷⁶ Thus, each party was basically the judge of what constituted an emergency in international relations. Measures that parties have sought to justify under Article XXI have included trade embargoes, import quotas, and suspensions of tariff concessions.⁷⁷ Parties have pointed to both potential and actual dangers as “emergencies” supposedly justifying these typically GATT inconsistent measures.⁷⁸

With respect to who determines whether a WTO Member's use of the exception is valid, the United States has previously taken the position that Article XXI is “self-judging.”⁷⁹ That is, each member invoking Article XXI is the judge of whether its use of the exception is valid. As a result, there is currently no WTO case law on the use of Article XXI. However, some scholars have speculated that, in the future, a WTO panel or the Appellate Body may decline to defer to a WTO Member's judgment about when its use of Article XXI is appropriate.⁸⁰ One of these international

⁷¹ GATT 1994, Art. XX(b). It is worth noting that the “necessary” requirement is a rather high standard to meet. Appellate Body Report, *Brazil—Measures Affecting Imports of Retreaded Tyres*, ¶ 150, WT/DS332/AB/R (December 3, 2007).

⁷² GATT 1994, Art. XX(g). Although “relating to” may be an easier standard to meet when relying on the exception, the measure in question must also operate in conjunction with domestic restrictions.

⁷³ GATT 1994, Art. XIII.

⁷⁴ GATT 1994, Art. XXI.

⁷⁵ GATT 1994, Art. XXI(b)(iii).

⁷⁶ See GATT Analytical Index—Guide to GATT Law and Practice 602-05 (6th ed. 1995).

⁷⁷ *Id.* at 602-05.

⁷⁸ *Id.* at 600.

⁷⁹ Dapo Akande & Sope Williams, *International Adjudication on National Security Issues: What Role for the WTO?*, 43 *Va. J. Int'l L.* 365, 375-76 (2003).

⁸⁰ *Id.* at 383-84.

quasi-judicial bodies may instead decide to more carefully scrutinize a member's use of the exception. For example, a panel may consider whether there is an emergency in international relations justifying national security screening for exports of fossil fuels to certain countries but not others.

NAFTA and Other Free Trade Agreements

In addition to the GATT, the United States is party to numerous FTAs. It is beyond the scope of this report to discuss fully the provisions of each FTA signed by the United States. However, as an example, several FTAs require national treatment for trade in natural gas. These include FTAs with Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea and Singapore.⁸¹ The FTAs with Costa Rica and Israel do not require national treatment for trade in natural gas.⁸²

As a further example, under the North American Free Trade Agreement (NAFTA) the United States has certain obligations related to energy trade with Mexico and Canada. Chapter 6 of NAFTA deals with "Energy and Basic Petrochemicals." Chapter 6 reconfirms the Parties' obligations under the GATT and imposes additional obligations on the Parties, such as certain requirements for export taxes.⁸³ NAFTA also imposes barriers to invoking some of the general exceptions to the GATT.⁸⁴ For example, a country may only invoke the "conservation of exhaustible natural resources" exception if it does not result in a higher price for exports than for domestic consumption of the energy products.⁸⁵ These additional obligations illustrate that compliance with FTAs must be considered when establishing export regulations for energy products.

Pending Legislation

S. 192, the Expedited LNG for American Allies Act of 2013, was introduced in the Senate on January 31, 2013, by Senator John Barrasso. An identical bill, H.R. 580, was introduced in the House of Representatives by Representative Michael Turner. The bills would amend section 3 of the NGA to provide that expedited approval of LNG exports would be granted to four different categories of foreign countries: (1) nations for which there is in effect a free trade agreement (FTA) requiring national treatment for trade in natural gas; (2) a member country of the North Atlantic Treaty Organization (NATO); (3) Japan, so long as the Treaty of Mutual Cooperation and Security of January 19, 1960, between Japan and the United States remains in effect; and (4) "any other foreign country if the Secretary of State, in consultation with the Secretary of Defense,

⁸¹ Department of Energy, How to Obtain Authorization to Import and/or Export Natural Gas and LNG, <http://energy.gov/fe/how-obtain-authorization-import-and-or-export-natural-gas-and-lng>.

⁸² *Id.*

⁸³ North American Free Trade Agreement, Arts. 603, 604 [hereinafter NAFTA].

⁸⁴ NAFTA, Art. 605.

⁸⁵ *Id.*

determines that exportation of natural gas to that foreign country would promote the national security interests of the United States.⁸⁶

At least two other bills that pertain to the export of natural gas have been introduced. H.R. 1189, the American Natural Gas Security and Consumer Protection Act, was introduced in the House by then-Representative Ed Markey. The bill would amend the NGA to require the Secretary of Energy to develop regulations for determining whether an export of natural gas from the United States to a foreign country is in the public interest for the purposes of issuing an export authorization.⁸⁷ Under the regulations, the public interest determination would have to be made after the secretary's consideration of several factors, including the energy security of the United States; the ability of the United States to reduce greenhouse gas emissions; and an environmental impact statement issued under the National Environmental Policy Act that analyzes the impact of extraction of exported natural gas on the environment in communities where the gas is extracted.⁸⁸ H.R. 1191, the Keep American Natural Gas Here Act, was also introduced in the House by then-Representative Ed Markey. Among other things, it would provide that the Secretary of the Interior could accept bids on new oil and gas leases of federal lands (including submerged lands) only from bidders certifying that all natural gas produced pursuant to such leases would be sold only in the United States.⁸⁹

With regard to oil, H.R. 1190, the Keep America's Oil Here Act, was introduced in the House by then-Representative Ed Markey. The bill would provide that the Secretary of the Interior could accept bids on new oil and gas leases of federal lands (including submerged lands) only from bidders certifying that oil produced pursuant to such leases, and any refined petroleum products produced from that oil, would be sold only in the United States.⁹⁰ The bill would allow the President to waive this requirement for a lease in certain circumstances, including when a waiver is necessary under an international agreement.⁹¹ In addition, S. 435, the American Oil for American Families Act of 2013, was introduced in the Senate by Senator Robert Menendez. The bill would ban the export of crude oil or refined petroleum products derived from federal lands (including land on the Outer Continental Shelf).⁹²

Conclusion

Recent advances in natural gas exploration and production technology have led to a newfound interest in the possibility of expanding US fossil fuel exports. Such exports, and the facilities needed to conduct export operations, are subject to a panoply of federal laws and regulations. These include the authorizations required by the Natural Gas Act, a generic ban on crude oil exports, and various laws and regulations applicable to construction and operation of export facilities. Currently, any party wishing to export fossil fuels must comply with these laws and regulations.

⁸⁶ S. 192, §2.

⁸⁷ H.R. 1189, §2.

⁸⁸ *Id.*

⁸⁹ H.R. 1191, §2.

⁹⁰ H.R. 1190, §3.

⁹¹ *Id.* §4.

⁹² S. 435, §2.

Under international trade rules, restrictions on exports of fossil fuels could potentially be difficult to reconcile with Articles I and XI of the GATT 1994. Article XXI, the exception for essential security interests, may be cited in order to justify potential violations of GATT Articles I and XI. The United States has traditionally considered this exception to be self-judging. However, it is possible that a panel or the Appellate Body might scrutinize the United States' use of the exception.

Article XX of the GATT provides additional exceptions that a member country may invoke if it is found to be in violation of any GATT obligations. However, Article XIII requires that if an otherwise GATT inconsistent measure is permitted to remain in force due to an Article XX exception, the measure must be administered in a non-discriminatory manner. Export restrictions that treat WTO Members differently would appear not to satisfy the non-discriminatory requirements of Article XIII.

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PART 1917—MARINE TERMINALS

§1917.2, definition of hazardous cargo, material, substance or atmosphere).

Subpart A—General Provisions

Sec.

- 1917.1 Scope and applicability.
1917.2 Definitions.
1917.3 Incorporation by reference.
1917.4 OMB control numbers under the Paperwork Reduction Act.

Subpart B—Marine Terminal Operations

- 1917.11 Housekeeping.
1917.12 Slippery conditions.
1917.13 Slinging.
1917.14 Stacking of cargo and pallets.
1917.15 Coopering.
1917.16 Line handling. (See also §1917.95(b)).
1917.17 Railroad facilities.
1917.18 Log handling.
1917.19 Movement of barges and railcars.
1917.20 Interference with communications.
1917.21 Open fires.
1917.22 Hazardous cargo (See §1917.2(p)).
1917.23 Hazardous atmospheres and substances (see also §1917.2 Hazardous cargo, material, substance or atmosphere).
1917.24 Carbon monoxide.
1917.25 Fumigants, pesticides, insecticides and hazardous preservatives (see also §1917.2 Hazardous cargo, material, substance or atmosphere).
1917.26 First aid and lifesaving facilities.
1917.27 Personnel.
1917.28 Hazard communication (See also §1917.1(a)(2)(vi)).
1917.29 Retention of DOT markings, placards and labels.
1917.30 Emergency action plans.

Subpart C—Cargo Handling Gear and Equipment

- 1917.41 House falls.
1917.42 Miscellaneous auxiliary gear.
1917.43 Powered industrial trucks.
1917.44 General rules applicable to vehicles.
1917.45 Cranes and derricks (See also §1917.50).
1917.46 Load indicating devices.
1917.47 Winches.
1917.48 Conveyors.
1917.49 Spouts, chutes, hoppers, bins, and associated equipment.
1917.50 Certification of marine terminal material handling devices (See also mandatory appendix I, of this part).
1917.51 Hand tools.

Subpart D—Specialized Terminals

- 1917.70 General.
1917.71 Terminals handling intermodal containers or roll-on roll-off operations.
1917.73 Terminal facilities handling menhaden and similar species of fish (see also

Subpart E—Personal Protection

- 1917.91 Eye and face protection.
1917.92 Respiratory protection.
1917.93 Head protection.
1917.94 Foot protection.
1917.95 Other protective measures.

Subpart F—Terminal Facilities

- 1917.111 Maintenance and load limits.
1917.112 Guarding of edges.
1917.113 Clearance heights.
1917.114 Cargo doors.
1917.115 Platforms and skids.
1917.116 Elevators and escalators.
1917.117 Manlifts.
1917.118 Fixed ladders.
1917.119 Portable ladders.
1917.120 Fixed stairways.
1917.121 Spiral stairways.
1917.122 Employee exits.
1917.123 Illumination.
1917.124 Dockboards (car and bridge plates).
1917.125 Guarding temporary hazards.
1917.126 River banks.
1917.127 Sanitation.
1917.128 Signs and marking.

Subpart G—Related Terminal Operations and Equipment

- 1917.151 Machine guarding.
1917.152 Welding, cutting and heating (hot work) (See also §1917.2, definition of Hazardous cargo, materials, substance, or atmosphere).
1917.153 Spray painting (See also §1917.2, definition of Hazardous cargo, materials, substance, or atmosphere).
1917.154 Compressed air.
1917.155 Air receivers.
1917.156 Fuel handling and storage.
1917.157 Battery charging and changing.
1917.158 Prohibited operations.

APPENDIX I TO PART 1917—SPECIAL CARGO GEAR AND CONTAINER SPREADER TEST REQUIREMENTS (MANDATORY) [SEE §1917.50(C)(5)]

AUTHORITY: Section 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); sections 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order Nos. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 6-96 (62 FR 111), or 5-2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

Section 1917.28 also issued under 5 U.S.C. 553.

Section 1917.29 also issued under Sec.29, Hazardous Materials Transportation Uniform Safety Act of 1990 (49 U.S.C. 1801-1819 and 5 U.S.C. 553).

§ 1917.1

SOURCE: 48 FR 30909, July 5, 1983, unless otherwise noted.

Subpart A—General Provisions**§ 1917.1 Scope and applicability.**

(a) The regulations of this part apply to employment within a marine terminal as defined in §1917.2, including the loading, unloading, movement or other handling of cargo, ship's stores or gear within the terminal or into or out of any land carrier, holding or consolidation area, any other activity within and associated with the overall operation and functions of the terminal, such as the use and routine maintenance of facilities and equipment. All cargo transfer accomplished with the use of shore-based material handling devices shall be regulated by this part.

(1) The provisions of this part 1917 do not apply to the following:

(i) Facilities used solely for the bulk storage, handling and transfer of flammable, non-flammable and combustible liquids and gases.

(ii) Facilities subject to the regulations of the Office of Pipeline Safety Regulation of the Materials Transportation Bureau, Department of Transportation, to the extent such regulations apply.

(iii) Fully automated bulk coal handling facilities contiguous to electrical power generating plants.

(2) Part 1910 of this chapter does not apply to marine terminals except for the following provisions:

(i) *Abrasive blasting*. Subpart G, §1910.94(a);

(ii) *Access to employee exposure and medical records*. Subpart Z, §1910.1020;

(iii) *Commercial diving operations*. Subpart T of part 1910;

(iv) *Electrical*. Subpart S of part 1910;

(v) *Grain handling facilities*. Subpart R, §1910.272;

(vi) *Hazard communication*. Subpart Z, §1910.1200;

(vii) *Ionizing radiation*. Subpart Z, §1910.1096;

(viii) *Noise*. Subpart G, §1910.95;

(ix) *Nonionizing radiation*. Subpart G, §1910.97;

(x) *Respiratory protection*. Subpart I, §1910.134;

29 CFR Ch. XVII (7-1-07 Edition)

(xi) *Safety requirements for scaffolding*. Subpart D, §1910.28;

(xii) *Servicing multi-piece and single piece rim wheels*. Subpart N, §1910.177;

(xiii) *Toxic and hazardous substances*. Subpart Z applies to marine cargo handling activities except for the following:

(A) When a substance or cargo is contained within a sealed, intact means of packaging or containment complying with Department of Transportation or International Maritime Organization requirements;¹

(B) Bloodborne pathogens, §1910.1030;

(C) Carbon monoxide, §1910.1000 (See §1917.24(a)); and

(D) Hydrogen sulfide, §1910.1000 (See §1917.73(a)(2)); and

(E) Hexavalent chromium §1910.1026 (See §1915.1026)

(xiv) Powered industrial truck operator training, Subpart N, §1910.178(1).

NOTE TO PARAGRAPH (a)(2)(xiv): The compliance dates of December 1, 1999 set forth in 29 CFR 1910.178(1)(7) are stayed until March 1, 2000 for Marine Terminals.

(b) Section 1915.1026 applies to any occupational exposures to hexavalent chromium in workplaces covered by this Part.

[48 FR 30909, July 5, 1983, as amended at 52 FR 36026, Sept. 25, 1987; 52 FR 49624, Dec. 31, 1987; 62 FR 40196, July 25, 1997; 63 FR 66274, Dec. 1, 1998; 64 FR 46847, Aug. 27, 1999; 65 FR 40938, June 30, 2000; 71 FR 10381, Feb. 28, 2006]

§ 1917.2 Definitions.

Apron means that open portion of a marine terminal immediately adjacent to a vessel berth and used in the direct transfer of cargo between the terminal and vessel.

Authorized, in reference to an employee's assignment, means selected by the employer for that purpose.

Cargo door (transit shed door) means a door designed to permit transfer of cargo to and from a marine terminal structure.

Cargo packaging means any method of containment for shipment, including

¹The International Maritime Organization publishes the International Maritime Dangerous Goods Code to aid compliance with the international legal requirements of the International Convention for the Safety of Life at Sea, 1960.

cases, cartons, crates and sacks, but excluding large units such as intermodal containers, vans or similar devices.

Confined space means:

(1) A space having all of the following characteristics:

- (i) Small size;
- (ii) Severely limited natural ventilation;
- (iii) Capability to accumulate or contain a hazardous atmosphere;
- (iv) Exits that are not readily accessible; and
- (v) A design not meant for continuous human occupancy.

(2) Examples of confined spaces are intermodal tank containers, bailwater tanks and portable tanks.

Conveyor means a device designed exclusively for transporting bulk materials, packages or objects in a predetermined path and having fixed or selective points of loading or discharge.

Danger zone means any place in or about a machine or piece of equipment where an employee may be struck by or caught between moving parts, caught between moving and stationary objects or parts of the machine, caught between the material and a moving part of the machine, burned by hot surfaces or exposed to electric shock. Examples of danger zones are nip and shear points, shear lines, drive mechanisms, and areas beneath counterweights.

Designated person means a person who possesses specialized abilities in a specific area and is assigned by the employer to perform a specific task in that area.

Dock means a wharf or pier forming all or part of a waterfront facility, including marginal or quayside berthing facilities; not to be confused with "loading dock" as at a transit shed or container freight station, or with the body of water between piers or wharves.

Dockboards (car and bridge plates) mean devices for spanning short distances between rail cars or highway vehicles and loading platforms that do not expose employees to falls greater than 4 feet (1.22 m).

Enclosed space means an indoor space, other than a confined space, that may contain or accumulate a hazardous at-

mosphere due to inadequate natural ventilation. Examples of enclosed spaces are trailers, railcars, and storage rooms.

Examination, as applied to material handling devices required by this part to be certificated, means a comprehensive survey consisting of the criteria outlined in 29 CFR 1919.71(d) as applicable to the type of gear or device. The examination is supplemented by a unit proof test in the case of a quadrennial survey.

Flammable atmosphere means an atmosphere containing more than 10 percent of the lower flammable limit of a flammable or combustible vapor or dust mixed with air.

Front-end attachments. (1) As applied to power-operated industrial trucks, means the various devices, such as roll clamps, rotating and sideshifting carriages, magnets, rams, crane arms or booms, load stabilizers, scoops, buckets and dumping bins, attached to the load end for handling lifts as single or multiple units.

(2) As applied to cranes, means various attachments applied to the basic machine for the performance of functions such as lifting, clamshell or magnet services.

Fumigant is a substance or mixture of substances, used to kill pests or prevent infestation, which is a gas or is rapidly or progressively transformed to the gaseous state, even though some nongaseous or particulate matter may remain and be dispersed in the treatment space.

Hazardous cargo, material, substance or atmosphere means:

(1) Any substance listed in 29 CFR part 1910, subpart Z;

(2) Any material in the Hazardous Materials Table and Hazardous Materials Communications Regulations of the Department of Transportation, 49 CFR part 172;

(3) Any article not properly described by a name in the Hazardous Materials Table and Hazardous Materials Communications Regulations of the Department of Transportation, 49 CFR part 172 but which is properly classified under the definition of those categories of dangerous articles given in 49 CFR Part 173; or

(4) Any atmosphere with an oxygen content of less than 19.5%.

House falls means spans and supporting members, winches, blocks, and standing and running rigging forming part of a marine terminal and used with a vessel's cargo gear to load or unload by means of married falls.

Inspection, as applied to material handling devices required by this part to be certificated, means a complete visual examination of all visible parts of the device.

Intermodal container means a reusable cargo container of a rigid construction and rectangular configuration; fitted with devices permitting its ready handling, particularly its transfer from one mode of transport to another; so designed to be readily filled and emptied; intended to contain one or more articles of cargo or bulk commodities for transportation by water and one or more other transport modes. The term includes completely enclosed units, open top units, fractional height units, units incorporating liquid or gas tanks and other variations fitting into the container system. It does not include cylinders, drums, crates, cases, cartons, packages, sacks, unitized loads or any other form of packaging.

Loose gear means removable and replaceable components of equipment or devices which may be used with or as a part of assembled material handling units for purposes such as making connections, changing line direction and multiplying mechanical advantage. Examples are shackles and snatch blocks.

Marine terminal means wharves, bulkheads, quays, piers, docks and other berthing locations and adjacent storage or adjacent areas and structures associated with the primary movement of cargo or materials from vessel to shore or shore to vessel including structures which are devoted to receiving, handling, holding, consolidating and loading or delivery of waterborne shipments or passengers, including areas devoted to the maintenance of the terminal or equipment. The term does not include production or manufacturing areas nor does the term include storage facilities directly associated with those production or manufacturing areas.

Ramps mean other flat-surface devices for passage between levels and across openings not covered under "dockboards."

[48 FR 30909, July 5, 1983, as amended at 62 FR 40196, July 25, 1997; 65 FR 40938, June 30, 2000]

§ 1917.3 Incorporation by reference.

(a) (1) The standards of agencies of the U.S. Government, and organizations which are not agencies of the U.S. Government which are incorporated by reference in this part, have the same force and effect as other standards in this part. Only the mandatory provisions (i.e. provisions containing the word "shall" or other mandatory language) of standards incorporated by reference are adopted as standards under the Occupational Safety and Health Act.

(2) Any changes in the standards incorporated by reference in this part and an official historic file of such changes are available for inspection at the national office of the Occupational Safety and Health Administration, U.S. Department of Labor, Washington, DC 20210.

(3) The materials listed in paragraph (b) of this section are incorporated by reference in the corresponding sections noted as they exist on the date of the approval, and a notice of any change in these materials will be published in the FEDERAL REGISTER. These incorporations by reference (IBRs) were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(4) Copies of the following standards that are issued by the respective private standards organizations may be obtained from the issuing organizations. The materials are available for purchase at the corresponding addresses of the private standards organizations noted in paragraph (b) of this section. In addition, all are available for inspection through the OSHA Docket Office, room N2625, U.S. Department of Labor, 200 Constitution Ave., Washington, DC 20210, or any of OSHA's regional offices or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://>

Occupational Safety and Health Admin., Labor

§ 1917.11

www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) The following material is available for purchase from the American National Standards Institute (ANSI), 11 West 42nd St., New York, NY 10036:

(1) ANSI A14.1-1990, Safety Requirements for Portable Wood Ladders; IBR approved for §1917.119(c).

(2) ANSI A14.2-1990, Safety Requirements for Portable Metal Ladders; IBR approved for §1917.119(c).

(3) ANSI A14.5-1992, Safety Requirements for Portable Reinforced Plastic Ladders; IBR approved for §1917.119(c).

(4) ANSI Z-87.1-1989, Practice for Occupational and Educational Eye and Face Protection; IBR approved for §1917.91(a)(1).

(5) ANSI Z-89.1-1986, Personnel Protection-Protective Headwear for Industrial Workers-Requirements; IBR approved for §1917.93(b).

(6) ANSI Z-41-1991, American National Standard for Personal Protection-Protective Footwear; IBR approved for §1917.94(b).

(7) ASME B56.1, 1959, Safety Code for Powered Industrial Trucks, pages 8 and 13; IBR approved for §1917.50(j)(1).

[62 FR 40196, July 25, 1997, as amended at 65 FR 40938, June 30, 2000; 69 FR 18803, Apr. 9, 2004]

§ 1917.4 OMB control numbers under the Paperwork Reduction Act.

The following list identifies the 29 CFR citations for sections or paragraphs in this part that contain a collection of information requirement approved by the Office of Management and Budget (OMB). The list also provides the control number assigned by OMB to each approved requirement; control number 1218-0196 expires on May 31, 2002 and control number 1218-0003 expires on July 31, 2001. The list follows:

29 CFR citation	OMB control number.
1917.17(n)	1218-0196
1917.17(o)	1218-0196
1917.23(b)(1)	1218-0196
1917.23(b)(2)	1218-0196
1917.23(d)(4)	1218-0196
1917.24(b)	1218-0196
1917.24(d)	1218-0196
1917.25(a)	1218-0196
1917.25(b)	1218-0196

29 CFR citation	OMB control number.
1917.25(c)	1218-0196
1917.25(f)	1218-0196
1917.26(d)(7)	1218-0196
1917.30(a)(1)	1218-0196
1917.30(a)(5)(iii)	1218-0196
1917.42(b)(1)	1218-0196
1917.42(b)(4)	1218-0196
1917.42(c)(1)	1218-0196
1917.42(d)(1)	1218-0196
1917.42(g)(3)	1218-0003
1917.42(h)(1)	1218-0196
1917.42(h)(4)	1218-0003
1917.42(h)(5)	1218-0196
1917.44(e)	1218-0196
1917.44(h)	1218-0196
1917.45(f)(1)(i)	1218-0196
1917.45(f)(4)(iv)	1218-0196
1917.45(f)(6)	1218-0196
1917.45(g)(2)	1218-0196
1917.45(g)(3)(iii)	1218-0196
1917.45(g)(8)	1218-0196
1917.45(k)(1)	1218-0196
1917.45(k)(4)	1218-0196
1917.46(a)(1)(v)	1218-0196
1917.50(c)(1)	1218-0003
1917.50(c)(3)	1218-0003
1917.50(c)(4)(i)	1218-0003
1917.50(c)(5)(ii)	1218-0003
1917.50(c)(5)(iii)	1218-0003
1917.50(e)	1218-0003
1917.50(g)(1)	1218-0003
1917.50(h)	1218-0003
1917.71(a)	1218-0196
1917.71(b)(2)(i)	1218-0196
1917.71(b)(2)(ii)	1218-0196
1917.71(b)(6)(ii)	1218-0196
1917.71(f)(4)	1218-0196
1917.111(b)	1218-0196
1917.113	1218-0196
1917.115(c)	1218-0196
1917.116(e)	1218-0196
1917.116(g)	1218-0196
1917.117(a)	1218-0196
1917.117(b)	1218-0196
1917.117(d)	1218-0196
1917.117(e)	1218-0196
1917.117(f)	1218-0196
1917.117(i)	1218-0196
1917.118(e)(4)(i)	1218-0196
1917.119(e)	1218-0196
1917.122(a)	1218-0196
1917.122(b)	1218-0196
1917.128(b)(1)-(b)(4)	1218-0196
1917.151(e)(5)	1218-0196
1917.152(d)(2)(v)	1218-0196
1917.152(d)(2)(vi)	1218-0196

[64 FR 61505, Nov. 12, 1999]

Subpart B—Marine Terminal Operations

§ 1917.11 Housekeeping.

(a) Active work areas shall be kept free of equipment and materials not in use, and clear of debris, projecting nails, strapping and other sharp objects not necessary for the work in progress.

§ 1917.12

(b) Hatch beams, covers and pontoons placed in terminal working areas shall be stowed in stable piles with beams secured against tipping or falling. Alternatively, beams may be laid on their sides. When beams and pontoons are stowed in tiers more than one high, dunnage or other suitable material shall be used under and between tiers.

(c) Cargo and material shall not obstruct access to vessels, cranes, vehicles or buildings. Means of access and egress within buildings shall be similarly unobstructed.

(d) Dunnage, lumber, or shoring material in which there are visibly protruding nails shall be removed from the immediate work area or if left in the area, the nails shall be rendered harmless.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40196, July 25, 1997]

§ 1917.12 Slippery conditions.

The employer shall eliminate, to the extent possible, conditions causing slippery working and walking surfaces in immediate work areas used by employees.

§ 1917.13 Slinging.

(a) Drafts shall be safely slung before being hoisted. Loose dunnage or debris hanging or protruding from loads shall be removed.

(b) Bales of cotton, wool, cork, wood pulp, gunny bags or similar articles shall be hoisted only by straps strong enough to support the weight of the bale. At least two hooks, each in a separate strap, shall be used.

(c) Unitized loads bound by bands or straps may be hoisted by the banding or strapping only if the banding or strapping is suitable for hoisting and is strong enough to support the weight of the load.

(d) Additional means of hoisting shall be employed to ensure safe lifting of unitized loads having damaged banding or strapping.

(e) Case hooks shall be used only with cases designed to be hoisted by these hooks.

(f) Loads requiring continuous manual guidance during handling shall be guided by guide ropes (tag lines) that are long enough to control the load.

29 CFR Ch. XVII (7-1-07 Edition)

(g) Intermodal containers shall be handled in accordance with §1917.71(f).

(h) The employer shall require employees to stay clear of the area beneath overhead drafts or descending lifting gear.

(i) Employees shall not be permitted to ride the hook or the load.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40197, July 25, 1997]

§ 1917.14 Stacking of cargo and pallets.

Cargo, pallets and other material stored in tiers shall be stacked in such a manner as to provide stability against sliding and collapse.

§ 1917.15 Coopering.

Repair and reconditioning of damaged or leaking cargo packaging (coopering) shall be performed so as not to endanger employees.

§ 1917.16 Line handling. (See also § 1917.95(b)).

(a) In order to provide safe access for handling lines while mooring and unmooring vessels, cargo or material shall not be stowed or vehicles placed where they obstruct the work surface to be used.

(b) When stringpiece or apron width is insufficient for safe footing, grab lines or rails shall be installed on the sides of permanent structures. ("Stringpiece" means a narrow walkway between the water edge of a berth and a shed or other structure.)

§ 1917.17 Railroad facilities.

(a) Work shall be performed in railcars only if floors of the railcars are in visibly safe condition for the work activity being conducted and equipment being used.

(b) A route shall be established to allow employees to pass to and from places of employment without passing under, over or through railcars, or between cars less than 10 feet (3 m) apart on the same track.

(c) The employer shall direct that no employees remain in railcars after work is concluded.

(d) Railcars shall be chocked or otherwise prevented from moving:

(1) While dockboards or carplates are in position; or

(2) While employees are working within, on or under the railcars or near the tracks at the ends of the cars.

(e) When employees are working in, on, or under a railcar, positive means shall be taken to protect them from exposure to impact from moving railcars.

(f) Before cars are moved, unsecured and overhanging stakes, wire straps, banding and similar objects shall be removed or placed so as not to create hazards.

(g) The employer shall institute all necessary controls during railcar movement to safeguard personnel. If winches or capstans are employed for movement, employees shall stand clear of the hauling rope and shall not stand between the rope and the cars.

(h) Before being opened fully, doors shall be opened slightly to ensure that the load has not shifted during transit. Special precautions shall be taken if the doors being opened are visibly damaged.

(i) If powered industrial trucks are used to open railcar doors, the trucks or the railcar doors shall be equipped with door opening attachments. Employees shall stand clear of the railcar doors while they are being opened and closed.

(j) Only railcar door openers or powered industrial trucks equipped with door opening attachments shall be used to open jammed doors.

(k) Employees shall not remain in or on gondolas or flat cars when drafts that create overhead, caught-in, caught-between or struck-by hazards are being landed in or on the railcar; end gates, if raised, shall be secured.

(l) Operators of railcar dumps shall have an unrestricted view of dumping operations and shall have emergency means of stopping movement.

(m) Recessed railroad switches shall be enclosed to provide a level surface.

(n) Warning signs shall be posted where doorways open onto tracks, at blind corners and at similar places where vision may be restricted.

(o) Warning signs shall be posted if insufficient clearance for personnel exists between railcars and structures.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40197, July 25, 1997]

§ 1917.18 Log handling.

(a) The employer shall ensure that structures (bunks) used to contain logs have rounded corners and rounded structural parts to avoid sling damage.

(b) Two or more binders or equivalently safe means of containment shall remain on logging trucks and railcars to secure logs during movement of the truck or car within the terminal. During unloading, logs shall be prevented from moving while binders are being removed.

(c) Logs shall be hoisted by two slings or by other gear designed for safe hoisting.

(d) Logs placed adjacent to vehicle curbs on the dock shall not be over one tier high unless placed in bunks or so stacked as not to roll or otherwise create a hazard to employees.

(e) Before logs are slung up from the dock, they shall be stably supported to prevent spreading and to allow passage of slings beneath the load. When bunks or similar retaining devices are used, no log shall be higher than the stanchions or retaining members of the device.

§ 1917.19 Movement of barges and railcars.

Barges and railcars shall not be moved by cargo runners (running rigging) from vessel cargo booms, cranes or other equipment not suitable for the purpose.

§ 1917.20 Interference with communications.

Cargo handling operations shall not be carried on when noise-producing, maintenance, construction or repair work interferes with the communication of warnings or instructions.

[62 FR 40197, July 25, 1997]

§ 1917.21 Open fires.

Open fires and fires in drums or similar containers are prohibited.

§ 1917.22 Hazardous cargo² (See § 1917.2(p)).

(a) Before cargo handling operations begin, the employer shall ascertain whether any hazardous cargo is to be handled and shall determine the nature of the hazard. The employer shall inform employees of the nature of any hazard and any special precautions to be taken to prevent employee exposure, and shall instruct employees to notify him of any leaks or spills.

(b) All hazardous cargo shall be slung and secured so that neither the draft nor individual packages can fall as a result of tipping the draft or slacking of the supporting gear.

(c) If hazardous cargo is spilled or if its packaging leaks, employees shall be removed from the affected area until the employer has ascertained the specific hazards, provided any equipment, clothing and ventilation and fire protection equipment necessary to eliminate or protect against the hazard, and has instructed cleanup employees in a safe method of cleaning up and disposing of a spill and handling and disposing of leaking containers. Actual cleanup or disposal work shall be conducted under the supervision of a designated person.

§ 1917.23 Hazardous atmospheres and substances (see also § 1917.2 Hazardous cargo, material, substance or atmosphere).

(a) *Purpose and scope.* This section covers areas in which the employer is aware that a hazardous atmosphere or substance may exist, except where one or more of the following sections apply: § 1917.22 Hazardous cargo; § 1917.24 Carbon monoxide; § 1917.25 Fumigants, pesticides, insecticides and hazardous preservatives; § 1917.73 Terminal facilities handling menhaden and similar species of fish; § 1917.152 Welding, cutting, and heating (hot work); and § 1917.153 Spray painting.

(b) *Determination of hazard.* (1) When the employer is aware that a room, building, vehicle, railcar, or other

²The Department of Transportation and the United States Coast Guard apply requirements related to handling, storing and transportation of hazardous cargo (see 33 CFR part 126, 46 CFR, 49 CFR).

space contains or has contained a hazardous atmosphere, a designated and appropriately equipped person shall test the atmosphere before employee entry to determine whether a hazardous atmosphere exists.

(2) Records of results of any tests required by this section shall be maintained for at least thirty (30) days.

(c) *Testing during ventilation.* When mechanical ventilation is used to maintain a safe atmosphere, tests shall be made by a designated person to ensure that the atmosphere is not hazardous.

(d) *Entry into hazardous atmospheres.* Only designated persons shall enter hazardous atmospheres, in which case the following shall apply:

(1) Persons entering a space containing a hazardous atmosphere shall be protected by respiratory and emergency protective equipment meeting the requirements of subpart E of this part;

(2) Persons entering a space containing a hazardous atmosphere shall be instructed in the nature of the hazard, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, shall continuously monitor the activity of employees within such space;

(3) Except for emergency or rescue operations, employees shall not enter into any atmosphere which has been identified as flammable or oxygen deficient (less than 19.5% oxygen). Persons who may be required to enter flammable or oxygen deficient atmospheres in emergency operations shall be instructed in the dangers attendant to those atmospheres and instructed in the use of self-contained breathing apparatus, which shall be utilized.

(4) To prevent inadvertent employee entry into spaces that have been identified as having hazardous, flammable or oxygen deficient atmospheres, appropriate warning signs or equivalent means shall be posted at all means of access to those spaces.

(e) When the packaging of asbestos cargo leaks, spillage shall be cleaned up by designated employees protected

from the harmful effects of asbestos as required by § 1910.1001 of this chapter.

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984; 61 FR 5509, Feb. 13, 1996; 62 FR 40197, July 25, 1997; 65 FR 40938, June 30, 2000]

§ 1917.24 Carbon monoxide.

(a) *Exposure limits.* The carbon monoxide content of the atmosphere in a room, building, vehicle, railcar, or any enclosed space shall be maintained at not more than 50 parts per million (ppm) (0.005%) as an eight hour average area level and employees shall be removed from the enclosed space if the carbon monoxide concentration exceeds a ceiling of 100 ppm (0.01%).

(b) *Testing.* Tests to determine carbon monoxide concentration shall be made when necessary to ensure that employee exposure does not exceed the limits specified in paragraph (a) of this section.

(c) *Instrumentation.* Tests for carbon monoxide concentration shall be made by designated persons using gas detector tube units certified by NIOSH under 30 CFR part 11 or other measuring instruments whose accuracy is as great or greater.

(d) *Records.* A record of the date, time, location and results of carbon monoxide tests shall be available for at least thirty (30) days.

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984; 61 FR 5509, Feb. 13, 1996; 62 FR 40197, July 25, 1997]

§ 1917.25 Fumigants, pesticides, insecticides and hazardous preservatives (see also § 1917.2 Hazardous cargo, material, substance or atmosphere).

(a) At any time that the concentration in any space reaches the level specified as hazardous by the fumigant manufacturer or by Table Z-1 of 29 CFR 1910.1000, whichever is lower, all employees shall be removed from the space and shall not be permitted to re-enter until such time as tests demonstrate that the atmosphere is safe.

(b) Tests to determine the atmospheric concentration of chemicals used to treat cargo shall be:

(1) Appropriate for the hazard involved;

(2) Conducted by designated persons; and

(3) Performed at the intervals necessary to ensure that employee exposure does not exceed the permissible exposure limit for the chemical involved.

(c) Results of any tests shall be available for at least 30 days. Such records may be entered on any retrievable medium, and shall be available for inspection.

(d) Chemicals shall only be applied to cargoes by designated persons.

(e) Only designated persons shall enter hazardous atmospheres, in which case the following provisions apply.

(1) Persons entering a space containing a hazardous atmosphere shall be protected by respiratory and emergency protective equipment meeting the requirements of subpart E of this part; and

(2) Persons entering a space containing a hazardous atmosphere shall be instructed in the nature of the hazard, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, shall continuously monitor the activity of employees within such a space.

(f) Signs shall be clearly posted where fumigants, pesticides or hazardous preservatives have created a hazardous atmosphere. These signs shall note the danger, identify specific chemical hazards, and give appropriate information and precautions, including instructions for the emergency treatment of employees affected by any chemical in use.

(g) In the case of containerized shipments of fumigated tobacco, the contents of the container shall be aerated by opening the container doors for a period of 48 hours after the completion of fumigation and prior to loading. When tobacco is within shipping cases having polyethylene or similar bag liners, the aeration period shall be 72 hours. The employer shall obtain a written warranty from the fumigation facility stating that the appropriate aeration period has been met.

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984; 61 FR 5509, Feb. 13, 1996; 62 FR 40197, July 25, 1997]

§ 1917.26 First aid and lifesaving facilities.

(a) Employers shall instruct employees to report every injury, regardless of severity, to the employer.

(b) A first aid kit shall be available at the terminal, and at least one person holding a valid first aid certificate shall be at the terminal when work is in progress.

(c) *First aid kit.* First aid kits shall be weatherproof and shall contain individual sealed packages for each item that must be kept sterile. The contents of each kit shall be determined by a person certified in first aid and cognizant of the hazards found in marine cargo handling operations. The contents shall be checked at intervals that allow prompt replacement of expended items.

(d) *Stretchers.* (1) There shall be available for each vessel being worked one Stokes basket stretcher, or its equivalent, permanently equipped with bridles for attaching to the hoisting gear.

(2) Stretchers shall be kept close to vessels and shall be positioned to avoid damage to the stretcher.

(3) A blanket or other suitable covering shall be available.

(4) Stretchers shall have at least four sets of effective patient restraints in operable condition.

(5) Lifting bridles shall be of adequate strength, capable of lifting 1,000 pounds (454 kg) with a safety factor of five, and shall be maintained in operable condition. Lifting bridles shall be provided for making vertical patient lifts at container berths. Stretchers for vertical lifts shall have foot plates.

(6) Stretchers shall be maintained in operable condition. Struts and braces shall be inspected for damage. Wire mesh shall be secured and have no burrs. Damaged stretchers shall not be used until repaired.

(7) Stretchers in permanent locations shall be mounted to prevent damage and shall be protected from the elements if located out-of-doors. If concealed from view, closures shall be marked to indicate the location of the life saving equipment.

(e) Telephone or equivalent means of communication shall be readily available.

(f) A U.S. Coast Guard approved 30-inch (76.2 cm) life ring, with at least 90 feet (27.43m) of line attached, shall be available at readily accessible points at each waterside work area where the employees' work exposes them to the hazard of drowning. Employees working on any bridge or structure leading to a detached vessel berthing installation shall wear U.S. Coast Guard approved personal flotation devices except where protected by railings, nets, or safety belts and lifelines. A readily available portable or permanent ladder giving access to the water shall also be provided within 200 feet (61 m) of such work areas.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40197, July 25, 1997; 65 FR 40938, June 30, 2000]

§ 1917.27 Personnel.

(a) *Qualifications of machinery operators.* (1) Only those employees determined by the employer to be competent by reason of training or experience, and 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 cargo handling apparatus, or any power operated vehicle, or give signals to the operator of any hoisting apparatus. *Exception:* Employees being trained and supervised by a designated person may operate such machinery and give signals to operators during training.

(2) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments that may suddenly incapacitate the employee, shall be permitted to operate a crane, winch or other power-operated cargo handling apparatus or a power-operated vehicle.

NOTE TO PARAGRAPH (a)(2): OSHA is defining suddenly incapacitating medical ailments consistent with the Americans with Disabilities Act (ADA), 42 U.S.C. 12101 (1990). Therefore, employers who act in accordance with the employment provisions (Title I) of the ADA (42 U.S.C. 12111-12117), the regulations implementing Title I (29 CFR Part 1630), and the Technical Assistance Manual for Title I issued by the Equal Employment Opportunity Commission (Publication number: EEOC-M1A), will be considered as being in compliance with this paragraph.

(b) *Supervisory accident prevention proficiency.* (1) After October 3, 1985 immediate supervisors of cargo-handling operations of more than five (5) persons shall satisfactorily complete a course in accident prevention. Employees newly assigned to supervisory duties after that date shall be required to meet the provisions of this paragraph within ninety (90) days of such assignment.

(2) The course shall consist of instruction suited to the particular operations involved.³

[48 FR 30909, July 5, 1983, as amended at 62 FR 40197, July 25, 1997; 65 FR 40938, June 30, 2000]

§ 1917.28 Hazard communication (See also § 1917.1(a)(2)(vi)).

§ 1917.29 Retention of DOT markings, placards and labels.

(a) Any employer who receives a package of hazardous material which is required to be marked, labeled or placarded in accordance with the U. S. Department of Transportation's 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.

(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 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 which require the marking or placarding are sufficiently removed to prevent any potential hazards.

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

³The following are recommended topics: (i) Safety responsibility and authority; (ii) elements of accident prevention; (iii) attitudes, leadership and motivation; (iv) hazards of longshoring, including peculiar local circumstances; (v) hazard identification and elimination; (vi) applicable regulations; and (vii) accident investigations.

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

(e) For the purposes of this section, the term "hazardous material" and any other terms not defined in this section have the same definition as in the Hazardous Materials Regulations (49 CFR parts 171 through 180).

[59 FR 36700, July 19, 1994]

§ 1917.30 Emergency action plans.

(a) *Emergency action plans*—(1) *Scope and application.* This paragraph (a) requires all employers to develop and implement an emergency action plan.^{3a} The emergency action plan shall be in writing (except as provided in paragraph (a)(5)(iv) of this section) and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.

(2) *Elements.* The following elements, at a minimum, shall be included in the plan:

(i) Emergency escape procedures and emergency escape route assignments;

(ii) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;

(iii) Procedures to account for all employees after emergency evacuation has been completed;

(iv) Rescue and medical duties for those employees who are to perform them;

(v) The preferred means of reporting fires and other emergencies; and

(vi) Names or regular job titles of persons or departments that can be contacted for further information or explanation of duties under the plan.

(3) *Alarm system.* The employer shall establish an employee alarm system that provides warning for necessary emergency action and for reaction time for safe escape of employees from the workplace or the immediate work area.

^{3a}When an employer directs his employees to respond to an emergency that is beyond the scope of the Emergency Action Plan developed in accordance with this section, then § 1910.120(q) of this chapter shall apply.

(4) *Evacuation.* The employer shall establish the types of evacuation to be used in emergency circumstances.

(5) *Training.* (i) Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

(ii) The employer shall review the plan with each employee covered by the plan at the following times:

(A) Initially when the plan is developed;

(B) Whenever the employee's responsibilities or designated actions under the plan change; and

(C) Whenever the plan is changed.

(iii) The employer shall review with each employee upon initial assignment those parts of the plan that the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and be made available for employee review.

(iv) Employers with 10 or fewer employees may communicate the plan orally to employees and need not maintain a written plan

(b) [Reserved]

[62 FR 40198, July 25, 1997, as amended at 65 FR 40938, June 30, 2000]

Subpart C—Cargo Handling Gear and Equipment

§ 1917.41 House falls.

(a) Span beams shall be secured to prevent accidental dislodgement.

(b) A safe means of access shall be provided for employees working with house fall blocks.

(c) Designated employees shall inspect chains, links, shackles, swivels, blocks and other loose gear used in house fall operations before each day's use. Defective gear shall not be used.

§ 1917.42 Miscellaneous auxiliary gear.

(a) *Routine inspection.* (1) At the completion of each use, loose gear such as slings, chains, bridles, blocks and hooks shall be so placed as to avoid damage to the gear. Loose gear shall be inspected and any defects corrected before reuse.

(2) All loose gear shall be inspected by the employer or his authorized representative before each use and, when necessary, at intervals during its use, to ensure that it is safe. Any gear which is found upon such inspection to be visibly unsafe shall not be used until it is made safe.

(3) Defective gear shall not be used. Distorted hooks, shackles or similar gear shall be discarded.

(b) *Wire rope and wire rope slings.* (1) The employer shall ascertain and adhere to the manufacturer's recommended ratings for wire rope and wire rope slings and shall have such ratings available for inspection. When the manufacturer is unable to supply such ratings, the employer shall use the tables for wire rope and wire rope slings found in American National Safety Standard for Slings, ANSI B30.9–1971. A design safety factor of at least five shall be maintained for the common sizes of running wire used as falls, in purchases or in such uses as light load slings. Wire rope with a safety factor of less than five may be used only:

(i) In specialized equipment, such as but not limited to cranes, designed to be used with lesser wire rope safety factors;

(ii) In accordance with design factors in standing rigging applications; or

(iii) For heavy lifts or other purposes for which a safety factor of five is impracticable and for which the employer can demonstrate that equivalent safety is ensured.

(2) Wire rope or wire rope slings having any of the following conditions shall not be used:

(i) Ten randomly distributed broken wires in one rope lay or three or more broken wires in one strand in one rope lay;

(ii) Kinking, crushing, bird caging or other damage resulting in distortion of the wire rope structure;

(iii) Evidence of heat damage;

(iv) Excessive wear or corrosion, deformation or other defect in the wire or attachments, including cracks in attachments;

(v) Any indication of strand or wire slippage in end attachments; or

(vi) More than one broken wire in the close vicinity of a socket or swaged fitting.

(3) Protruding ends of strands in splices on slings and bridles shall be covered or blunted. Coverings shall be removable so that splices can be examined. Means used to cover or blunt ends shall not damage the wire.

(4) Where wire rope clips are used to form eyes, the employer shall adhere to the manufacturers' recommendations, which shall be made available for inspection. If "U" bolt clips are used and the manufacturers' recommendations are not available, Table C-1 shall be used to determine the number and spacing of the clips. "U" bolts shall be applied with the "U" section in contact with the dead end of the rope.

TABLE C-1—NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS

Improved plow steel, rope diameter (inches/cm)	Minimum number of clips		Minimum spacing (inches/cm)
	Drop forged	Other material	
1/2 or less (1.3)	3	4	3 (7.6)
5/8 (1.6)	3	4	3 3/4 (9.5)
3/4 (1.9)	4	5	4 1/2 (11.4)
7/8 (2.2)	4	5	5 1/4 (13.3)
1 (2.5)	5	7	6 (15.2)
1 1/8 (2.9)	6	7	6 3/4 (17.1)
1 1/4 (3.2)	6	8	7 1/2 (19.1)
1 3/8 (3.5)	7	8	8 1/4 (21.0)
1 1/2 (3.8)	7	9	9 (22.9)

(5) Wire rope shall not be secured by knots.

(6) Eyes in wire rope bridles, slings, bull wires, or in single parts used for hoisting shall not be formed by wire rope clips or knots.

(7) Eye splices in wire ropes shall have at least three tucks with a whole strand of the rope and two tucks with one-half of the wire cut from each strand. Other forms of splices or connections which are shown to be equivalently safe may be used.

(8) Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in bulling cargo, shall consist of one continuous piece without knot or splice.

(c) *Natural fiber rope.* (1) The employer shall ascertain the manufacturers' ratings for the specific natural fiber rope used and have such ratings available for inspection. The manufac-

turers' ratings shall be adhered to and a minimum design safety factor of five maintained.

(2) Eye splices shall consist of at least three full tucks. Short splices shall consist of at least six full tucks, three on each side of the center line.

(d) *Synthetic rope.* (1) The employer shall adhere to the manufacturers' ratings and use recommendations for the specific synthetic fiber rope used and shall make such ratings available for inspection.

(2)(i) Unless otherwise recommended by the manufacturer, when synthetic fiber ropes are substituted for fiber ropes of less than three inches (7.62 cm) in circumference, the substitute shall be of equal size. Where substituted for fiber rope of three inches or more in circumference, the size of the synthetic rope shall be determined from the formula:

$$C = \pm \sqrt{0.6C_s^2 + 0.4C_m^2}$$

Where C = the required circumference of the synthetic rope in inches, Cs = the circumference to the nearest one-quarter inch of a synthetic rope having a breaking strength not less than that of the size fiber rope that is required by paragraph (c) of this section and Cm = the circumference of the fiber rope in inches that is required by paragraph (c) of this section.

(ii) In making such substitution, it shall be ascertained that the inherent characteristics of the synthetic fiber are suitable for hoisting.

(e) *Removal of natural and synthetic rope from service.* Natural and synthetic rope having any of the following defects shall be removed from service:

- (1) Abnormal wear;
- (2) Powdered fiber between strands;
- (3) Sufficient cut or broken fibers to affect the capability of the rope;
- (4) Variations in the size or roundness of strands;
- (5) Discolorations other than stains not associated with rope damage;
- (6) Rotting; or
- (7) Distortion or other damage to attached hardware.

(f) *Thimbles.* Properly fitting thimbles shall be used where any rope is secured permanently to a ring, shackle or attachment, where practicable.

(g) *Synthetic web slings.* (1) Slings and nets or other combinations of more

than one piece of synthetic webbing assembled and used as a single unit (synthetic web slings) shall not be used to hoist loads in excess of the sling's rated capacity.

(2) Synthetic web slings shall be removed from service if they exhibit any of the following defects:

- (i) Acid or caustic burns;
- (ii) Melting or charring of any part of the sling surface;
- (iii) Snags, punctures, tears or cuts;
- (iv) Broken or worn stitches; or
- (v) Distortion or damage to fittings.

(vi) Display of visible warning threads or markers designed to indicate excessive wear or damage.

(3) Defective synthetic web slings removed from service shall not be returned to service unless repaired by a sling manufacturer or similar entity. Each repaired sling shall be proof tested by the repairer to twice the slings' rated capacity prior to its return to service. The employer shall retain a certificate of the proof test and make it available for examination.

(4) Synthetic web slings provided by the employer shall only be used in accordance with the manufacturer's use recommendations, which shall be available.

(5) Fittings shall have a breaking strength at least equal to that of the sling to which they are attached and shall be free of sharp edges.

(h) *Chains and chain slings used for hoisting.* (1) The employer shall adhere to the manufacturer's recommended ratings for safe working loads for the sizes of wrought iron and alloy steel chains and chain slings used and shall have such ratings available. When the manufacturer is unable to provide such ratings, the employer shall use the tables for chains and chain slings found in American National Safety Standard for Slings, ANSI B30.9-1971.

(2) Proof coil steel chain, also known as common or hardware chain, and other chain not recommended by the manufacturer for slinging or hoisting shall not be used for slinging or hoisting.

(3)(i) Sling chains, including end fastenings, shall be inspected for visible defects before each day's use and as often as necessary during use to ensure integrity of the sling.

(ii) Thorough inspections of chains in use shall be made quarterly to detect wear, defective welds, deformation or increase in length or stretch. The month of inspection shall be indicated on each chain by color of paint on a link or by other equally effective means.

(iii) Chains shall be removed from service when maximum allowable wear, as indicated in Table C-2, is reached at any point of link.

(iv) Chain slings shall be removed from service when stretch has increased the length of a measured section by more than five percent; when a link is bent, twisted or otherwise damaged; or when a link has a raised scarf or defective weld.

(v) Only designated persons shall inspect chains used for slinging and hoisting.

TABLE C-2—MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size		Maximum allowable wear	
Inches	(cm)	Inches	(cm)
1/4(9/32)	(0.6)	3/64	(0.1)
3/8	(1.0)	5/64	(0.2)
1/2	(1.3)	7/64	(0.3)
5/8	(1.6)	9/64	(0.4)
3/4	(1.9)	5/32	(0.4)
7/8	(2.2)	11/64	(0.4)
1	(2.5)	3/16	(0.5)
1 1/8	(2.9)	7/32	(0.6)
1 1/4	(3.2)	1/4	(0.6)
1 3/8	(3.5)	9/32	(0.7)
1 1/2	(3.8)	5/16	(0.8)
1 3/4	(4.4)	11/32	(0.9)

(4) Chains shall be repaired only under qualified supervision. Links or portions of chain defective under any of the criteria of paragraph (h)(3)(iii) of this section shall be replaced with properly dimensioned links or connections of material similar to those of the original chain. Before repaired chains are returned to service, they shall be tested to the proof load recommended by the manufacturer of the original chain. Tests shall be performed by the manufacturer or shall be certified by an agency accredited for the purpose under part 1919 of this chapter. Test certificates shall be available for inspection.

(5) Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding six months. Heat treatment certificates shall be

available for inspection. Alloy chains shall not be annealed.

(6) Kinked or knotted chains shall not be used for lifting. Chains shall not be shortened by bolting, wiring or knotting. Makeshift links or fasteners such as wire, bolts or rods shall not be used.

(7) Hooks, rings, links and attachments affixed to sling chains shall have rated capacities at least equal to that of the chains to which they are attached.

(8) Chain slings shall bear identification of size, grade and rated capacity.

(i) *Shackles*. (1) If available, the manufacturer's recommended safe working loads for shackles shall not be exceeded. In the absence of manufacturer's recommendations, Table C-3 shall apply.

(2) Screw pin shackles used aloft in house fall or other gear, except in cargo hook assemblies, shall have their pins moused or otherwise effectively secured.

TABLE C-3—SAFE WORKING LOADS FOR SHACKLES

Material size		Pin diameter		Safe working load in 2,000 lb tons
Inches	(cm)	Inches	(cm)	
1/2	(1.3)	5/8	(1.6)	1.4
5/8	(1.6)	3/4	(1.9)	2.2
3/4	(1.9)	7/8	(2.2)	3.2
7/8	(2.2)	1	(2.5)	4.3
1	(2.5)	1 1/8	(2.9)	5.6
1 1/8	(2.9)	1 1/4	(3.2)	6.7
1 1/4	(3.2)	1 3/8	(3.5)	8.2
1 3/8	(3.5)	1 1/2	(3.8)	10.0
1 1/2	(3.8)	1 5/8	(4.1)	11.9
1 3/4	(4.4)	2	(5.1)	16.2
2	(5.1)	2 1/4	(5.7)	21.2

(j) *Hooks other than hand hooks*. (1) The manufacturers' recommended safe working loads for hooks shall not be exceeded. Hooks other than hand hooks shall be tested in accordance with § 1917.50(c)(6).

(2) Bent or sprung hooks shall be discarded.

(3) Teeth of case hooks shall be maintained in safe condition.

(4) Jaws of patent clamp-type plate hooks shall be maintained in condition to grip plates securely.

(5) Loads shall be applied to the throat of the hook only.

(k) *Pallets*. (1) Pallets shall be made and maintained to safely support and carry loads being handled. Fastenings

of reusable pallets used for hoisting shall be bolts and nuts, drive screws (helically threaded nails), annular threaded nails or fastenings of equivalent holding strength.

(2) Damaged pallets shall be stored in designated areas and identified.

(3) Reusable wing or lip-type pallets shall be hoisted by bar bridles or other suitable gear and shall have an overhanging wing or lip of at least three inches (7.62cm). They shall not be hoisted by wire slings alone.

(4) Loaded pallets that do not meet the requirements of this paragraph shall be hoisted only after being placed on pallets meeting such requirements or shall be handled by other means providing equivalent safety.

(5) Bridles for handling flush end or box-type pallets shall be designed to prevent disengagement from the pallet under load.

(6) Pallets shall be stacked or placed to prevent falling, collapsing or otherwise causing a hazard under standard operating conditions.

(7) Disposable pallets intended only for one use shall not be reused for hoisting.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40198, July 25, 1997; 65 FR 40938, June 30, 2000]

§ 1917.43 Powered industrial trucks.

(a) *Applicability*. This section applies to every type of powered industrial truck used for material or equipment handling within a marine terminal. It does not apply to over-the-road vehicles.

(b) *General*. (1) After October 3, 1983, modifications, such as adding counterweights, that might affect the vehicle's capacity or safety shall not be performed without either the manufacturer's prior written approval or the written approval of a professional engineer experienced with the equipment who has consulted with the manufacturer, if available. Capacity, operation and maintenance instruction plates, tags or decals shall be changed to conform to the equipment as modified.

(2) Unauthorized personnel shall not ride on powered industrial trucks. A safe place to ride shall be provided when riding is authorized.

(3) When a powered industrial truck is left unattended, load-engaging means shall be fully lowered, controls neutralized and brakes set. Unless the truck is in view and within 25 feet (7.62 m) of the operator, power shall be shut off. Wheels shall be blocked or curbed if the truck is on an incline.

(4) Powered industrial trucks shall not be operated inside highway vehicles or railcars having damage which could affect operational safety.

(5) Powered industrial trucks shall be marked with their rated capacities, which shall be visible to the operator.

(6) Only stable and safely arranged loads within the rated capacity of the truck shall be handled.

(7) The employer shall direct drivers to ascend and descend grades slowly.

(8) The employer shall direct drivers to slow down and sound the horn at crossaisles and other locations where visibility is obstructed.

(9) If the load obstructs the forward view, the employer shall direct drivers to travel with the load trailing.

(10) Steering knobs shall not be used unless the truck is equipped with power steering.

(11) When powered industrial trucks use cargo lifting devices that have a means of engagement hidden from the operator, a means shall be provided to enable the operator to determine that the cargo has been engaged.

(12) When cargo is being towed on pipe trucks or similar equipment, a safe means shall be provided to protect the driver from sliding loads.

(c) *Maintenance*. (1) Only designated persons shall perform maintenance and repair.

(2) Batteries on all powered trucks shall be disconnected during repairs to the primary electrical system unless power is necessary for testing and repair. On trucks equipped with systems capable of storing residual energy, that energy shall be safely discharged before work on the primary electrical system begins.

(3) Replacement parts whose function might affect operational safety shall be equivalent in strength and performance capability to the original parts which they replace.

(4) Braking systems or other mechanisms used for braking shall be operable and in safe condition.

(5) Powered industrial trucks shall be maintained in safe working order. Safety devices shall not be removed or made inoperative except as otherwise provided in this section. Trucks with a fuel system leak or any other safety defect shall not be operated.

(6) Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated as safe for such repairs.

(d) *Approved trucks*—(1) *Approved power-operated industrial truck* means one listed or approved for the intended use by a nationally recognized testing laboratory.

(2) Approved trucks acquired and used after February 15, 1972, shall bear a label or other identification indicating testing laboratory approval.

(3) When the atmosphere in an area is hazardous and the provisions of United States Coast Guard regulations at 33 CFR 126.15(e) do not apply, only power-operated industrial trucks approved for such locations shall be used.

(e) *Fork lift trucks*—(1) *Overhead guards*. (i) When operators are exposed to overhead falling hazards, fork lift trucks shall be equipped with securely attached overhead guards. Guards shall be constructed to protect the operator from falling boxes, cartons, packages, or similar objects.

(ii) Overhead guards shall not obstruct the operator's view, and openings in the top of the guard shall not exceed six inches (15.24 cm) in one of the two directions, width or length. Larger openings are permitted if no opening allows the smallest unit of cargo being handled to fall through the guard.

(iii) Overhead guards shall be built so that failure of the vehicle's mast tilting mechanism will not displace the guard.

(iv) An overhead guard, otherwise required by this paragraph, may be removed only when it would prevent a truck from entering a work space and if the operator is not exposed to low overhead obstructions in the work space.

(v) Overhead guards shall be large enough to extend over the operator during all truck operations, including forward tilt.

(2) *Load backrest extensions.* Where necessary to protect the operator, fork lift trucks shall be fitted with a vertical load backrest extension to prevent the load from hitting the mast when the mast is positioned at maximum backward tilt. For this purpose, a "load backrest extension" means a device extending vertically from the fork carriage frame to prevent raised loads from falling backward.

(3) *Forks.* Forks, fork extensions and other attachments shall be secured so that they cannot be accidentally dislodged, and shall be used only in accordance with the manufacturer's recommendations.

(4) *Counterweights.* Counterweights shall be so affixed that they cannot be accidentally dislodged.

(5) *Capacities and weights.* (i) Fork lift truck rated capacities, with and without removable counterweights, shall not be exceeded. Rated capacities shall be marked on the vehicle and shall be visible to the operator. The vehicle weight, with and without counterweight, shall be similarly marked.

(ii) If loads are lifted by two or more trucks working in unison, the total weight of the load shall not exceed the combined rated lifting capacity of all trucks involved.

(6) *Lifting of employees.* Employees may be elevated by fork lift trucks only when a platform is secured to the lifting carriage or forks. The platform shall meet the following requirements:

(i) The platform shall have a railing complying with §1917.112(c).

(ii) The platform shall have toeboards complying with §1917.112(d) if tools or other objects could fall on employees below.

(iii) An employee shall be at the truck's controls whenever employees are elevated.

(iv) Employees on the platform shall be protected from exposure to moving truck parts.

(v) The platform floor shall be skid resistant.

(vi) When the truck has controls elevated with the lifting carriage, means shall be provided for employees on the

platform to shut off power to the vehicle.

(vii) While employees are elevated, the truck may be moved only to make minor placement adjustments.

(f) *Bulk cargo-moving vehicles.* (1) Where a seated operator may come into contact with projecting overheads, crawler-type bulk-cargo-moving vehicles that are rider operated shall be equipped with operator's guards.

(2) Guards and their attachment points shall be so designed as to be able to withstand, without excessive deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

(3) After July 26, 1999 bulk cargo-moving vehicles shall be equipped with rollover protection of such design and construction as to prevent the possibility of the operator being crushed because of a rollover or upset.

(g) *Straddle trucks—(1) Accessibility.* Straddle trucks shall have a permanent means of access to the operator's station, including any handholds necessary for safe ascent and descent.

(2) *Guarding.* (i) Main sprockets and chains to the wheels shall be guarded as follows:

(A) The upper sprocket shall be enclosed;

(B) The upper half of the lower sprocket shall be enclosed; and

(C) The drive chain shall be enclosed for that portion at the lower half of the lower sprocket.

(ii) Gears shall be enclosed and revolving parts which may be contacted by the operator shall be guarded.

(iii) When straddle trucks are used in the vicinity of employees, personnel-deflecting guards shall be provided around leading edges of front and rear wheels.

(3) *Visibility.* Operator visibility shall be provided in all directions of movement.

(h) *Trailer-spotting tractors.* (1) Trailer-spotting tractors (fifth wheels) shall be fitted with any hand grabs and footing necessary for safe access to the fifth wheel.

(2) Rear cab windows shall be of safety glass or of equivalent material.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40198, July 25, 1997; 65 FR 40939, June 30, 2000]

§ 1917.44 General rules applicable to vehicles.⁴

(a) The requirements of this section apply to general vehicle use within marine terminals. *Exception:* The provisions of paragraphs (c) and (1) of this section do not apply when preempted by applicable regulations of the Department of Transportation.⁵

(b) Private vehicle parking in marine terminals shall be allowed only in designated areas.

(c) Trailers shall not be disconnected from tractors at loading docks until the road wheels have been immobilized. The road wheels shall be immobilized from the time the brake system is disconnected until braking is again provided. Supplementary front end support shall be employed as necessary to prevent tipping when a trailer is entered by a material handling vehicle. Rear end support shall be employed if rear wheels are so far forward as to allow tipping when the trailer is entered.

(d) The employer shall direct motor vehicle operators to comply with any posted speed limits and other traffic control signs or signals, and written traffic instructions.

(e) Stop signs shall be posted at main entrances and exits of structures where visibility is impaired, and at blind intersections, unless direct traffic control or warning mirror systems or other systems of equivalent safety are provided.

⁴The United States Coast Guard at 33 CFR 126.15(d) and (e) has additional regulations applicable to vehicles in terminals.

⁵Department of Transportation regulations in 49 CFR part 393, Subpart C—Brakes, address the immobilization of trailer road wheels prior to disconnection of the trailer and until braking is again provided. Section 49 CFR 393.84 addresses the condition of flooring. These DOT rules apply when the motor carrier is engaged in interstate commerce or in the transport of certain hazardous items wholly within a municipality or the commercial zone thereof.

(f) Vehicular routes, traffic rules, and parking areas shall be established, identified, and used.

(g) The employer shall direct vehicle drivers to warn employees in traffic lanes of the vehicle's approach.

(h) Signs indicating pedestrian traffic shall be clearly posted at vehicular check-in and check-out lines and similar locations where employees may be working.

(i) A distance of not less than 20 feet (6.1 m) shall be maintained between the first two vehicles in a check-in, check-out, roadability, or vessel loading/discharging line. This distance shall be maintained between any subsequent vehicles behind which employees are required to work.

(j) No unattended vehicle shall be left with its engine running unless secured against movement (see §1917.43(b)(3) for powered industrial trucks).

(k) When the rear of a vehicle is elevated to facilitate loading or discharging, a ramp shall be provided and secured. The vehicle shall be secured against accidental movement during loading or discharging.

(l) Only highway vehicle floors in safe condition shall be used.

(m) When flatbed trucks, platform containers or similar conveyances are loaded or discharged and the cargo consists of pipe or other products which could spread or roll to endanger employees, the cargo shall be contained to prevent movement.

(n) Vehicles used to transport employees within a terminal shall be maintained in safe working order and safety devices shall not be removed or made inoperative.

(o) *Servicing multi-piece and single piece rim wheels.* Servicing of multi-piece and single piece rim wheels is covered by §1910.177 of this chapter. (See §1917.1(a)(2)(xii)).

(1) *Scope.* This paragraph applies to the servicing of vehicle wheels containing tube-type tires mounted on multi-piece rims.

(2) *Definition.* "Multi-piece rim" means a vehicle wheel rim consisting of two or more parts, one of which is a (side) locking ring designed to hold the tire on the rim by tension on interlocking components when the tire is

inflated, regardless of the relative sizes of the component parts.

(3) *Employee training.* (i) Only employees trained in the procedures required in paragraph (o)(4) of this section and who have demonstrated their ability to service multi-piece rim wheels shall be assigned such duties.

(ii) Employees assigned such duties shall have demonstrated their ability by the safe performance of the following tasks:

- (A) Tire demounting (including deflation);
- (B) Inspection of wheel components;
- (C) Mounting of tires;
- (D) Inflation of tires, including use of a restraining device;
- (E) Handling of wheels;
- (F) Inflation of tires when a wheel is mounted on the vehicle; and
- (G) Installation and removal of wheels.

(4) *Servicing procedures.* The following procedures shall be followed:

(i) Tires shall be completely deflated before demounting by removal of the valve core;

(ii) The valve core shall be removed before the wheel is removed from the axle when:

(A) The tire has been operated under-inflated at 80% or less of its recommended pressure, or

(B) There is discernible or suspected damage to the tire or wheel components;

(iii) Mating surfaces shall be free of dirt, surface rust, scale and rubber buildup before mounting;

(iv) Rubber lubricant shall be applied to bead and rim mating surfaces upon wheel assembly and inflation of the tire;

(v) Air pressure shall not exceed 3 psig (0.21 kg/cm²) when seating the locking ring or rounding out the tube when a tire is being partially inflated without a restraining device;

(vi) While the tire is pressurized, components shall not be struck or forced to correct the seating of side or lock rings;

(vii) There shall not be any contact between an employee or unit of equipment and a restraining device during tire inflation;

(viii) After inflation, tires, rims and rings shall be inspected while within

the restraining device to ensure seating and locking. If adjustment is necessary the tire shall first be deflated by valve core removal; and

(ix) Before assembly, wheel components shall be inspected, and damaged rim components shall not be reused.

(5) *Charts and manuals.* (i) The employer shall provide a chart containing as a minimum the instructions and information provided in the United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA) publication "Safety Precautions for Mounting and Demounting Tube-Type Truck/Bus Tires" and "Multi-Piece Rim Wheel Matching Chart," and pertinent to the type(s) of multi-piece rim wheels being serviced. The chart shall be available in the terminal's service area.⁶

(ii) A current rim manual containing the manufacturer's instructions for mounting, demounting, maintenance and safety precautions relating to the multi-piece rim wheels being serviced shall be available in the terminal's service area.

(6) *Restraining devices.* (i) Except as otherwise noted, inflation shall be done within a restraining device such as a cage, rack or other device capable of withstanding the maximum force that would be transferred to it during an explosive wheel separation occurring at 150% of maximum tire specification pressure for the wheels being serviced. The restraining device shall be capable of preventing rim components from being thrown outside the frame of the device for any wheel position within the device. When the wheel assembly is mounted on a vehicle, tires may be inflated without a restraining device only if they have more than 80% of the recommended pressure and if remote control inflation equipment is used and employees are clear of the danger area.

(ii) Restraining devices shall be kept in good repair and be capable of preventing rim components from being thrown outside the device.

⁶NHTSA charts are available from General Services Division, National Highway Traffic Safety Administration, Attention: N48-51, 400 Seventh Street, SW., Washington, D.C. 20590. Industry charts are available upon request from the manufacturer.

(7) *Inflation hoses.* Inflation hoses shall have a manual clip-on chuck with sufficient hose to permit an employee to be clear of the danger zone. An inline, manually operated valve with gauge or a preset pressure regulator shall be used to inflate tires.

(8) *Other equipment.* (i) Only tools recommended in the rim manual for the type of wheel being serviced shall be used to service multi-piece rim wheels.

(ii) Wheel components shall not be interchanged except as provided in the applicable chart or manual.

[48 FR 30909, July 5, 1983, as amended at 52 FR 36026, Sept. 25, 1987; 62 FR 40199, July 25, 1997; 65 FR 40939, June 30, 2000]

§ 1917.45 Cranes and derricks (See also § 1917.50).

(a) *Coverage.* (1) This section applies to every kind of crane and derrick and to any other type of equipment performing the functions of a crane or derrick except as noted in paragraph (a)(2) of this section.

(2) This section does not apply to small industrial truck-type cranes, container handling top-loaders and sideloaders, chain hoists, and mobile straddle-type cranes incapable of straddling two or more intermodal containers (16 feet (4.88 m) in width).

(b) *Ratings.* (1) Except for bridge cranes covered by paragraph (g) of this section, cranes and derricks having ratings that vary with boom length, radius (outreach) or other variables shall have a durable rating chart visible to the operator, covering the complete range of the manufacturer's (or design) capacity ratings. The rating chart shall include all operating radii (outreach) for all permissible boom lengths and jib lengths as applicable, with and without outriggers, and alternate ratings for optional equipment affecting such ratings. Precautions or warnings specified by the owner or manufacturer shall be included along with the chart.

(2) The manufacturer's (or design) rated loads for the conditions of use shall not be exceeded.

(3) Designated working loads shall not be increased beyond the manufacturer's ratings or original design limitations unless such increase receives the manufacturer's approval. When the manufacturer's services are not avail-

able or where the equipment is of foreign manufacture, engineering design analysis shall be performed or approved by a person accredited for certifying the equipment under part 1919 of this chapter. Engineering design analysis shall be performed by a registered professional engineer competent in the field of cranes and derricks. Any structural changes necessitated by the change in rating shall be carried out.

(c) *Radius indicator.* When the rated load varies with the boom radius, the crane or derrick shall be fitted with a boom angle or radius indicator visible to the operator.

(d) *Prohibited usage.* (1) Equipment shall not be used in a manner that exerts sideloading stresses upon the crane or derrick boom.

(2) No crane or derrick having a visible or known defect that affects safe operation shall be used.

(e) *Protective devices.* (1) When exposed moving parts such as gears, chains and chain sprockets present a hazard to employees during crane and derrick operations, those parts shall be securely guarded.

(2) Crane hooks shall be latched or otherwise secured to prevent accidental load disengagement.

(f) *General—(1) Operating controls.* (i) Crane and derrick operating controls shall be clearly marked, or a chart indicating their function shall be posted at the operator's position.

(ii) After October 3, 1984, overhead bridge and container gantry crane operating control levers shall be self-centering so that they will automatically move to the "off" position when the operator releases the control.

(2) *Booms.* Cranes with elevatable booms and without operable automatic limiting devices shall be provided with boom stops if boom elevation can exceed maximum design angles from the horizontal.

(3) *Foot pedals.* Foot pedals shall have a non-skid surface.

(4) *Access.* Ladders, stairways, stanchions, grab irons, foot steps or equivalent means shall be provided as necessary to ensure safe access to footwalks, cab platforms, the cab and any portion of the superstructure which employees must reach.

(i) Footwalks shall be of rigid construction, and shall be capable of supporting a load of 100 pounds (4.79 kPa) per square foot.

(ii) If more than 20 feet (6.1 m) in height, vertical ladders shall comply with §1917.118 (d), (e)(1), (e)(2)(iii), and (e)(2)(iv).

(iii) Stairways on cranes shall be equipped with rigid handrails meeting the requirements of §1917.112(e).

(iv) If the top of a ladder or stairway or any position thereof is located where a moving part of a crane, such as a revolving house, could strike an employee ascending or descending the ladder or stairway, a prominent warning sign shall be posted at the foot of the ladder or stairway. A system of communication (such as a buzzer or bell) shall be established and maintained between the foot of the ladder or stairway and the operator's cab.

(5) *Operator's station.* (i) The cab, controls and mechanism of the equipment shall be so arranged that the operator has a clear view of the load or signalman, when one is used. Cab glass, when used, shall be safety plate glass or equivalent. Cranes with missing, broken, cracked, scratched, or dirty glass (or equivalent) that impairs operator visibility shall not be used. Clothing, tools and equipment shall be stored so as not to interfere with access, operation, and the operator's view.

(ii) A seat (lap) belt, meeting the requirements of 49 CFR 571.208-210 for a Type 1 seat belt assembly, shall be installed on the operator's seat of high speed container gantry cranes where the seat trolleys.

(6) *Counterweights or ballast.* Cranes shall be operated only with the specified type and amount of ballast or counterweights. Ballast or counterweight shall be located and secured only as provided in the manufacturer's or design specifications, which shall be available.

(7) *Outriggers.* Outriggers shall be used according to the manufacturers' specifications or design data, which shall be available. Floats, when used, shall be securely attached to the outriggers. Wood blocks or other support shall be of sufficient size to support the trigger, free of defects that may affect safety and of sufficient width and

length to prevent the crane from shifting or toppling under load.

(8) *Exhaust gases.* Engine exhaust gases shall be discharged away from the normal position of crane operating personnel.

(9) Electrical equipment shall be so located or enclosed that live parts will not be exposed to accidental contact. Designated persons may work on energized equipment only if necessary during inspection, maintenance, or repair.

(10) *Fire extinguisher.* (i) At least one portable fire extinguisher of at least 5-BC rating or equivalent shall be accessible in the cab of the crane or derrick.

(ii) No portable fire extinguisher using carbon tetrachloride or chlorobromomethane extinguishing agents shall be used.

(11) *Rope on drums.* At least three full turns of rope shall remain on ungrooved drums, and two turns on grooved drums, under all operating conditions. Wire rope shall be secured to drums by clamps, U-bolts, shackles or equivalent means. Fiber rope fastenings are prohibited.

(12) *Assembly or disassembly of boom sections.* Mobile crane booms being assembled or disassembled on the ground with or without the support of the boom harness shall be blocked to prevent dropping of the boom or boom sections.

(13) *Brakes.* (i) Each independent hoisting unit of a crane shall be equipped with at least one holding brake, applied directly to the motor shaft or gear train.

(ii) Each independent hoisting unit of a crane, except worm geared hoists, the angle of whose worm is such as to prevent the load from accelerating in the lowering direction, shall, in addition to a holding brake, be equipped with a controlled braking means to control lowering speeds.

(iii) Holding brakes for hoist units shall have not less than the following percentage of the rated load hoisting torque at the point where the brake is applied:

(A) 125 percent when used with an other than mechanically controlled braking means; or

(B) 100 percent when used with a mechanically-controlled braking means.

(C) 100 percent when two holding brakes are provided.

(iv) All power control braking means shall be capable of maintaining safe lowering speeds of rated loads.

(g) *Rail-mounted cranes (excluding locomotive types).* (1) For the purposes of this section, rail-mounted cranes include bridge cranes and portal cranes.

(2) *Rated load marking.* The rated loads of bridge cranes shall be plainly marked on each side of the crane and in the cab. If there is more than one hoisting unit, each hoist shall have its rated load marked on it or on its load block. Marking shall be legible from the ground level.

(3) *Wind-indicating devices.* (i) After October 3, 1983, each rail-mounted bridge and portal crane located outside of an enclosed structure shall be fitted with an operable wind-indicating device.

(ii) The wind indicating device shall provide a visible or audible warning to alert the operator of high wind conditions. That warning shall be transmitted whenever the following circumstances are present:

(A) When wind velocity reaches the warning speed, not exceeding the crane manufacturer's recommendations; and

(B) When wind velocity reaches the shutdown speed, not exceeding the crane manufacturer's recommendations, at which work is to be stopped and the crane secured.

(iii) *Instructions.* The employer shall post operating instructions for high wind conditions in the operator's cab of each crane. Operators shall be directed to comply with these instructions. The instructions shall include procedures for responding to high wind alerts and for any coordination necessary with other cranes.

(4) *Securing of cranes in high winds.* (i) When the wind reaches the crane's warning speed:

(A) Gantry travel shall be stopped; and

(B) The crane shall be readied for shutdown.

(ii) When the wind reaches the crane's shutdown speed:

(A) Any portion of the crane spanning or partially spanning a vessel shall be moved clear of the vessel if safe to do so; and

(B) The crane shall be secured against travel, using all available means of securing.

(5) The employer shall monitor local weather conditions by subscribing to a weather service or using equally effective means.

(6) *Stops and bumpers.* (i) The ends of all tracks shall be equipped with stops or bumpers. If a stop engages the tread of the wheel, it shall be of a height not less than the radius of the wheel.

(ii) When more than one crane operates on the same runway or more than one trolley on the same bridge, each crane or trolley shall be equipped with bumpers or equivalent devices at adjacent ends subject to impact.

(7) *Employee exposure to crane movement.* When employees may be in the vicinity of the tracks, crane trucks shall be equipped with personnel-deflecting guards.

(8) *Pedestrian clearance.* If the track area is used for employee passage or for work, a minimum clearance of three feet (.91 m) shall be provided between trucks or the structures of rail-mounted cranes and any other structure or obstruction. When the required clearance is not available on at least one side of the crane's trucks, the area shall not be used and shall be marked and identified.

(9) *Warning devices.* Rail-mounted cranes shall be equipped with an effective travel warning device which shall be used to warn employees who may be in the path of the moving crane.

(10) *Communications.* Means of communication shall be provided between the operator's cab and the base of the gantry of all rail-mounted cranes. This requirement may be met by telephone, radio, sound-signalling system or other effective methods, but not solely by hand-signalling.

(11) Limit switch bypass systems shall be secured during all cargo operations. Such bypass systems shall not be used except in an emergency or during non-cargo handling operations such as stowing cranes or derricks or performing repairs. When a situation requiring the use of a bypass system or the readjustment of a limit switch arises, it shall be done only under the direction of a crane mechanic.

(h) *Stabilizing of locomotive cranes.* Loads may be hoisted by locomotive cranes only if outriggers are in place, unless means are taken to prevent the load being carried by the truck springs of the crane.

(i) *Operations.* (1) Use of cranes together. When two or more cranes hoist a load in unison, a designated person shall direct the operation and instruct personnel in positioning, rigging of the load and movements to be made.

(2) *Guarding of swing radius.* Accessible areas within the swing radius of the body of a revolving crane shall be physically guarded during operations to prevent an employee from being caught between the body of the crane and any fixed structure or between parts of the crane.

(3) *Securing mobile crane components in transit.* The crane's superstructure and boom shall be secured against rotation and carried in line with the direction of travel except when negotiating turns with an operator in the cab or when the boom is supported on a dolly. The empty hook or other attachment shall be secured.

(4) *Unattended cranes.* The following steps shall be taken before leaving a crane unattended between work periods:

(i) Suspended loads, such as those hoisted by lifting magnets or clamshell buckets, shall be landed unless the storage position or maximum hoisting of the suspended device will provide equivalent safety;

(ii) Clutches shall be disengaged;

(iii) The power supply shall be shut off;

(iv) The crane shall be secured against accidental travel; and

(v) The boom shall be lowered or secured against movement.

(5) *Operating near electric power lines.* (i) *Clearance.* Unless electrical distribution and transmission lines are de-energized and visibly grounded at the point of work, or unless insulating barriers not a part of or attached to the crane have been erected to prevent physical contact with lines, cranes may be operated near power lines only in accordance with the following:

(A) For lines rated 50 kV or below, minimum clearance between the lines

and any part of the crane or load shall be 10 feet (3.05 m);

(B) For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be either 10 feet (3.05 m) plus 0.4 inch (10.16 mm) for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet; and

(C) In transit with no load and boom lowered, the clearance shall be a minimum of 4 feet (1.22 m).

(ii) *Boom guards.* Cage-type boom guards, insulating links or proximity warning devices may be used on cranes, but they shall not be used in place of the clearances required by paragraph (i)(5)(i) of this section.

(iii) *Determination of energized lines.* Any overhead line shall be presumed to be energized until the owner of the line indicates that it is not energized.

(j) *Protection for employees being hoisted.* (1) No employee shall be hoisted by the load hoisting apparatus of a crane or derrick except:

(i) On intermodal container spreaders, equipped in accordance with paragraph (j)(8) of this section; or

(ii) In a boatswain's chair or other device rigged to prevent it from accidental disengagement from the hook or supporting member; or

(iii) On a platform meeting the following requirements:

(A) Enclosed by a railing or other means providing protection equivalent to that described in §1917.112(c). If equipped with open railings, the platform shall be fitted with toe boards;

(B) Having a safety factor of four based on ultimate strength;

(C) Bearing a plate or permanent marking indicating maximum load rating, which shall not be exceeded, and the weight of the platform itself;

(D) Equipped with a device to prevent access doors, when used, from opening accidentally;

(E) Equipped with overhead protection for employees on the platform if they are exposed to falling objects or overhead hazards;

(F) Secured to the load line by means other than wedge and socket attachments, unless the free (bitter) end of the line is secured back to itself by a clamp placed as close above the wedge as possible.

(2) Except in an emergency, the hoisting mechanism of all cranes or derricks used to hoist personnel shall operate only in power up and power down, with automatic brake application when not hoisting or lowering.

(3) Variable radius booms of a crane or derrick used to hoist personnel shall be so constructed or secured as to prevent accidental boom movement.

(4) Platforms or devices used to hoist employees shall be inspected for defects before each day's use and shall be removed from service if defective.

(5) Employees being hoisted shall remain in continuous sight of and communication with the operator or signalman.

(6) Operators shall remain at the controls when employees are hoisted.

(7) Cranes shall not travel while employees are hoisted, except in emergency or in normal tier to tier transfer of employees during container operations.

(8) When intermodal container spreaders are used to transfer employees to or from the tops of containers, the spreaders shall be equipped with a personnel platform equipped with fixed railings, provided that the railings have one or more openings for access. The openings shall be fitted with a means of closure, such as chains with hooks. Existing railings shall be at least 36 inches (0.91 m) in height. New railings installed after October 3, 1983 shall be 42 inches (1.07 m), plus or minus 3 inches (7.62 cm), in height. The provisions of paragraphs (j)(1)(iii)(C), (j)(1)(iii)(D), and (j)(1)(iii)(F) of this section also apply to personnel platforms when such container spreaders are used.

(9) Employees shall not be hoisted on intermodal container spreaders while a load is engaged.

(10) All cranes and derricks used to hoist personnel shall be equipped with an anti-two-blocking device.

(k) *Routine inspection.* (1) Designated persons shall visually inspect each crane and derrick on each day of use for defects in functional operating components and shall report any defect found to the employer. The employer shall inform the operator of the findings.

(2) A designated person shall thoroughly inspect all functional components and accessible structural features of each crane or device at monthly intervals.

(3) Any defects found during such inspections which may create a safety hazard shall be corrected before further equipment use. Repairs shall be performed only by designated persons.

(4) A record of monthly inspections shall be maintained for six months in or on the crane or derrick or at the terminal.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40199, July 25, 1997; 65 FR 40940, June 30, 2000]

§ 1917.46 Load indicating devices.

(a)(1) Except as provided in paragraph (a)(1)(viii) of this section, every crane after October 3, 1984 shall be fitted with a load indicating device or alternative device in proper working condition which shall meet the following criteria:

(i) The type or model or any load indicating or alternate device which is used shall provide:

(A) A direct indication in the cab of actual weight hoisted or a means of determining this by referencing a weight indication to crane ratings posted and visible to the operator, except that the use of a dynamometer or simple scale alone will not meet this requirement; or

(B) Indications in the cab according to the radius and load at the moment; or

(C) A direct means to prevent an overload from occurring.

(ii) The accuracy of the load indicating device, weight-moment device, or overload protection device shall be such that any indicated load (or limit), including the sum of actual weight hoisted and additional equipment or "add ons" such as slings, sensors, blocks, etc., is within the range between 95 percent (5 percent underload) and 110 percent (10 percent overload) of the actual true total load. Such accuracy shall be required over the range of daily operating variables reasonably anticipated under the conditions of use.

(iii) The device shall permit the operator to determine, before making any

lift, that the indicating or substitute system is operative. In the alternative, if a device is so mounted or attached to preclude such a determination, it may not be used unless it has been certified by the manufacturer to remain operable within the limits stated in paragraph (a)(1)(ii) of this section for a specific period of use. Checks for accuracy, using known values of load, shall be performed at the time of every certification survey (see §1917.50) and at such additional times as may be recommended by the manufacturer.

(iv) When a load indicating device or alternative system is so arranged in the supporting system (crane structure) that its failure could cause the load to be dropped, its strength shall not be the limiting factor of the supporting system (crane structure).

(v) Marking shall be conspicuously placed giving: units of measure in pounds or both pounds and kilograms, capacity of the indicating system, accuracy of the indicating system, and operating instructions and precautions. In the case of systems utilizing indications other than actual weights, the marking shall include data on: the means of measurement, capacity of the system, accuracy of the system, and operating instructions and precautions. If the system used provides no readout, but is such as to automatically cease crane operation when the rated load limit under any specific condition of use is reached, marking shall be provided giving the make and model of the device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All weight indications, other types of loading indications, and other data required shall be readily visible to the operator.

(vi) All load indicating devices shall be operative over the full operating radius. Overall accuracy shall be based on actual applied load and not on full scale (full capacity) load.

EXPLANATORY NOTE: For example, if accuracy of the load indicating device is based on full scale load and the device is arbitrarily set at plus/minus 10 percent, it would accept a reading between 90,000 and 110,000 lbs., at full capacity of a machine with 100,000 lbs., maximum rating, but would also allow a reading between zero and 20,000 lbs., at that outreach (radius) at which the rating would

be 10,000 lbs., capacity—an unacceptable figure. If, however, accuracy is based on actual applied load under the same conditions, the acceptable range would remain the same with the 100,000-lb. load but becomes a figure between 9,000 and 11,000 lbs., a much different and acceptable condition, at the 10,000-lb. load.

(vii) When the device uses the radius as a factor in its use or in its operating indications, the indicated radius (which may be in feet and/or meters, or degrees of boom angle, depending on the system used) shall be a figure which is within the range of a figure no greater than 110 percent of the actual radius to a figure which is no less than 97 percent of the actual (true) radius. A conversion chart shall be provided whenever it is necessary to convert between degrees of radius and feet or meters.

(viii) The load indicating device requirements of this subparagraph do not apply to a crane:

(A) Of trolley equipped bridge type or overhead type while handling intermodal containers known to be identified as empty, or loaded, and in either case in compliance with the provisions of §1917.71, or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose, and in all cases within the crane rating;

(B) While handling bulk commodities or cargoes by means of clamshell bucket or magnet;

(C) While used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products; or

(D) While the crane is used exclusively to handle cargo or equipment the total actual gross weight of which is known by means of marking of the unit or units hoisted, when such total actual gross weight never exceeds 11,200 lbs., and when 11,200 lbs., is less than the rated capacity of the crane at the maximum outreach that is possible under the conditions of use at the time.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40199, July 25, 1997]

§ 1917.47 Winches.

(a) Moving winch parts which present caught-in hazards to employees shall be guarded.

(b) Winches shall have clearly identifiable and readily accessible stop controls.

(c) Portable winches shall be secured against accidental shifting while in use.

(d) Portable winches shall be fitted with limit switches if employees have access to areas from which it is possible to be drawn into the winch.

(e) The provisions of §1917.45(f)(11) shall apply to winches.

§ 1917.48 Conveyors.

(a) *Guards.* (1) Danger zones at or adjacent to conveyors shall be guarded to protect employees.

(2) An elevated walkway with guardrail or equivalent means of protection shall be provided where employees cross over moving conveyors, and suitable guarding shall be provided when employees pass under moving conveyors.

(b) *Moving parts.* Conveyor rollers and wheels shall be secured in position.

(c) *Positioning.* Gravity conveyor sections shall be firmly placed and secured to prevent them from falling.

(d) *Braking.* (1) When necessary for safe operation, provisions shall be made for braking objects at the delivery end of the conveyor.

(2) Conveyors using electrically released brakes shall be constructed so that the brakes cannot be released until power is applied, and so that the brakes are automatically engaged if the power fails or the operating control is returned to the "stop" position.

(e) *Stability.* Portable conveyors shall be stable within their operating ranges. When used at variable fixed levels, the unit shall be secured at the operating level.

(f) *Emergency stop devices.* Readily accessible stop controls shall be provided for use in an emergency. Whenever the operation of any power conveyor requires personnel to work in the immediate vicinity of the conveyor, the Conveyor or controls shall not be left unattended while the conveyor is in operation.

(g) *Starting powered conveyors.* Powered conveyors shall not be started until all employees are clear of the conveyor or have been warned that the conveyor is about to start.

(h) *Loading and unloading.* The area around conveyor loading and unloading points shall be kept clear of obstructions during conveyor operations.

(i) *Lockout/Tagout.* (1) Conveyors shall be stopped and their power sources locked out and tagged out during maintenance, repair, and servicing, unless power is necessary for testing.

(2) The starting device shall be locked out and tagged out in the stop position before an attempt is made to remove the cause of a jam or overload of the conveying medium, unless it is necessary to have the power on to remove the jam.

(j) *Safe practices.* (1) Only designated persons shall operate, repair or service powered conveyors.

(2) The employer shall direct employees to stay off operating conveyors.

(3) Conveyors shall be operated only with all overload devices, guards and safety devices in place and operable.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40200, July 25, 1997]

§ 1917.49 Spouts, chutes, hoppers, bins, and associated equipment.

(a) Standing and running rigging and associated gear used as a permanent part of spouts, chutes or similar devices shall be inspected before each use and shall not be used if it has any functional defects. (See also §1917.50(c)(2) for certification requirements.)

(b) Direct communication shall be provided between the discharge or shipboard control end of loading spouts and chutes and the point in the terminal from which the flow of cargo is controlled.

(c) Chute and hopper openings which present a hazard shall be guarded to prevent employees from falling through them.

(d) When employees are working on hoppers, the hopper shall be equipped with a safe walkway and means of access.

(e) When necessary for the safety of employees, chutes shall be equipped with sideboards to afford protection from falling objects.

(f) Chutes shall be firmly placed and secured to prevent them from falling.

(g) When necessary for the safety of employees, provisions shall be made for

braking objects other than bulk commodities at the delivery end of the chute.

(h) Before an employee enters an empty bin:

(1) Personnel controlling the flow of cargo into the bin shall have been notified of the entry; and

(2) The power supply to the equipment carrying the cargo to the bin shall be turned off, locked out and tagged.

(i) Before an employee enters a bin containing a bulk commodity such as coal or sugar, the employer shall ensure that:

(1) Personnel controlling the flow of cargo into the bin have been notified of the entry;

(2) The power supply to the equipment carrying the cargo to the bin is turned off, locked out and tagged.

(3) The employee entering the bin wears a lifeline and safety harness; and
(4) A standby attendant equipped to perform a rescue is continuously stationed outside the bin until the employee has left the bin.

(j) Bin top openings that present a hazard to employees shall be covered to prevent employees from falling into bins.

(k) Chutes and hoppers shall be repaired only by designated persons.

(1)(1) Before power shoveling operations begin, a designated person shall inspect the equipment to be used. The inspection shall include at least the eye bolts, wires, and sheaves.

(2) Power shovels and associated equipment with defects affecting safe operation shall not be used.

(3) Before adjustments are made to a power shovel, wire, or associated equipment, the power supply to the shovel shall be turned off, locked out, and tagged, the belt stopped, and the hopper closed.

§ 1917.50 Certification of marine terminal material handling devices (See also mandatory appendix I, of this part).

(a) The employer shall not use any material handling device listed in paragraph (c) of this section until he has ascertained that the device has been certificated, as evidenced by current and valid documents attesting to com-

pliance with the requirements of paragraph (b) of this section.

(1) Certification surveys are to be completed for the conditions of use found at the time such surveys are completed, with the understanding that equipment owners/users can change the configurations of the equipment according to the manufacturer's specifications without affecting the established certification status for the equipment.

(2) In cases of foreign manufactured cranes, there shall be an owner's warranty that the design is adequate for the intended use. The warranty shall be based on a thorough examination of the design specifications by a registered professional engineer familiar with the equipment.

(b) The certifications required by this section shall be performed:

(1) In accordance with part 1919 of this chapter, by persons then currently accredited by the Occupational Safety and Health Administration as provided in that part; or

(2) In accordance with standards established and enforced by the state in which the device is located or by a political subdivision thereof, which have been found by the Secretary to be compatible with part 1919 of this chapter, by persons designated as competent to perform such certification by competent state authority and recognized as such by the Secretary.

(c) The marine terminal material handling devices listed below shall be certificated in the following manner:

(1) Each crane and derrick shall be tested as a unit quadrennially, and shall be examined annually. Certificates of tests and examinations shall be made readily available for inspection.

(2) Bulk cargo spouts and suckers, together with any portable extensions and rigging or outriggers supporting them vertically, shall be examined annually. Certificates attesting to the required examination shall be made readily available for inspection.

(3) Vertical pocket or bucket conveyors such as banana, sugar, and grain marine legs (other than those within a grain elevator structure) used within a marine terminal facility shall be examined annually. The annual examination

shall include all supporting structures, rigging and mechanical components and observation of all steps of operations. Certificates attesting to the required examinations shall be readily available for inspection.

(4)(i) House fall cargo-handling gear in use shall be proof load tested as a unit upon initial certification and every fourth year thereafter. An examination shall be carried out in conjunction with each unit proof load test and annually thereafter. The unit test shall consist of a proof load of 25 percent in excess of the rated safe working load. Examinations shall include all supporting structures and components. Certificates attesting to the required tests and examinations shall be readily available for inspection.

(ii) House fall span beams or other house fall block supports shall be marked with the safe working load, which shall not be exceeded.

(5) *Special gear.* (i) Special stevedoring gear provided by the employer, the strength of which depends upon components other than commonly used stock items such as shackles, ropes, or chains, and that has a Safe Working Load (SWL) greater than five short tons (10,000 lbs or 4.54 metric tons) shall be inspected and tested as a unit before initial use (see Table A in paragraph (c)(5)(ii) of this section). In addition, any special stevedoring gear that suffers damage necessitating structural repair shall be inspected and retested after repair and before being returned to service.

(ii) Special stevedoring gear provided by the employer that has a SWL of five short tons (10,000 lbs or 4.54 metric tons) or less shall be inspected and tested as a unit before initial use according to paragraphs (d) and (e) of this section or by a designated person (see Table A in this paragraph (c)(5)(ii)).

TABLE A

Safe working load	Proof load
Up to 20 short tons (18.1 metric tons).	25 percent in excess.
From 20 through 50 short tons (18.1 to 45.4 metric tons).	5 short tons in excess.
Over 50 short tons (45.4 metric tons).	10 percent in excess.

(iii) Every spreader that is not a part of ship's gear and is used for handling intermodal containers shall be inspected and tested before initial use to a proof load equal to 25 percent greater than its rated capacity. In addition, any spreader that suffers damage necessitating structural repair shall be inspected and retested after repair and before being returned to service.

(iv) All cargo handling gear covered by this section with a SWL greater than five short tons (10,000 lbs. or 4.54 metric tons) shall be proof load tested according to Table A of this section every 4 years in accordance with paragraph (b) of this section or by a designated person.

(v) Certificates and inspection and test records attesting to the tests required by this section shall be available for inspection.

(6) Wire rope and loose gear obtained after October 3, 1983, and used for material handling shall have been tested and certificated before being placed into use in accordance with the provisions of paragraphs (a), (c), and (d) of §§ 1919.31 and 1919.32 through 1919.34 of this chapter as applicable. Certificates attesting to the required tests, inspections and examinations shall be available.

(d) Disassembly and reassembly of equipment does not require recertification of the equipment provided that the equipment is reassembled and used in a manner consistent with its certification.

(e) For equipment certificated in accordance with paragraph (b)(2) of this section and transferred to a job site in another state, the current certification shall remain valid until the next inspection or examination becomes due.

(f) Certification procedures shall not be construed as a substitute for, or cause for elimination of, normal operational inspection and maintenance routine throughout the year.

(g)(1) Every unit of equipment requiring quadrennial certification shall have had such quadrennial certification within the previous 48 months. Equipment requiring annual certification shall have had such annual certification within the previous 12 months, except that no annual certification is required within 12 months

after any required quadrennial certification. Annual examinations for certification may be accomplished up to one month early without effect on subsequent due dates.

(2) When certificated equipment is out of service for 6 months or more beyond the due date of a certification inspection, an examination equivalent to an initial certification, including unit proof load test, shall be performed before the equipment re-enters service.

(h) Loose gear obtained after October 3, 1983 shall bear a legible mark indicating that it has been tested (see paragraph(c)(6) of this section). Single sheave blocks shall be marked with safe working loads and proof test loads. Marks relating to testing shall be identifiable on the related certificates, which shall be available.

(i) *Safe working load.* (1) The safe working load of gear as specified in this section shall not be exceeded.

(2) All cargo handling gear provided by the employer with a safe working load greater than five short tons (10,000 lbs. or 4.54 metric tons) shall have its safe working load plainly marked on it.

(j) *Exceptions:* The certification requirements of this section do not apply to the following equipment:

(1) Small industrial crane trucks as described on page 8 and illustrated on page 13 of ASME B56.1, 1959, "Safety Code for Powered Industrial Trucks", and powered industrial trucks;

(2) Any straddle truck not capable of straddling two or more intermodal containers 16 feet (4.88 m) in width; and

(3) Gear used only for handling or holding hoses, handling ship's stores or handling the gangway.

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984; 61 FR 5509, Feb. 13, 1996; 62 FR 40200, July 25, 1997; 64 FR 61506, Nov. 12, 1999; 65 FR 40940, June 30, 2000]

§ 1917.51 Hand tools.

(a) Hand tools used by employees shall be maintained in safe operating condition.

(b)(1) Hand-held portable electric tools shall be equipped with switches that must be manually held in a closed position to operate the tool.

(2) Portable power-driven circular saws shall be equipped with guards above and below the base plate or shoe.

The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc needed to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc needed to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

(c) Only cutting tools shall be used to cut metal strapping or banding used to secure cargo.

Subpart D—Specialized Terminals

§ 1917.70 General.

The provisions of this subpart D shall apply to specialized terminals in addition to any other applicable requirements of this part.

§ 1917.71 Terminals handling intermodal containers or roll-on roll-off operations.

(a) Every intermodal container shall be legibly and permanently marked with:

(1) The weight of the container when empty, in pounds;

(2) The maximum cargo weight the container is designed to carry, in pounds; and

(3) The sum of the weight of the container and the cargo, in pounds.

(b) No container shall be hoisted by any crane or derrick unless the following conditions have been met:

(1) The employer shall ascertain from the carrier whether a container to be hoisted is loaded or empty. Empty containers shall be identified before loading or discharge in such a manner as will inform every supervisor and foreman on the site and in charge of loading or discharging, or every crane or other hoisting equipment operator and signalman, if any, that such container is empty. Methods of identification may include cargo plans, manifests or markings on the container.

(2) In the case of a loaded container:

(i) The actual gross weight shall be plainly marked so as to be visible to the crane or other hoisting equipment

operator or signalman, or to every supervisor and foreman on the site and in charge of the operation; or

(ii) The cargo stowage plan or equivalent permanently recorded display serving the same purpose, containing the actual gross weight and the serial number or other positive identification of that specific container, shall be provided to the crane or other hoisting equipment operator and signalman, if any, and to every supervisor and foreman on the site and in charge of the operation.

(3) Every outbound loaded container which is received at a marine terminal ready to load aboard a vessel without further consolidation or loading shall be weighed to obtain the actual gross weight, either at the terminal or elsewhere, before being hoisted.

(4)(i) When container weighing scales are located at a marine terminal, any outbound container with a load consolidated at that terminal shall be weighed to obtain an actual weight before being hoisted.

(ii) If the terminal has no scales, the actual gross weight may be calculated on the basis of the container's contents and the container's empty weight. The weights used in the calculation shall be posted conspicuously on the container, with the name of the person making the calculation and the date.

(5) Open type vehicle carrying containers and those built specifically and used solely for the carriage of compressed gases are exempted from paragraphs (b)(3) and (b)(4) of this section.

(6) Closed dry van containers carrying vehicles are exempted from paragraph (b)(4) of this section provided that:

(i) The container carries only completely assembled vehicles and no other cargo;

(ii) The container is marked on the outside in such a manner that an employee can readily discern that the container is carrying vehicles; and

(iii) The vehicles were loaded into the container at the marine terminal.

(7) The weight of loaded inbound containers from foreign ports shall be determined by weighing or by the method of calculation described in paragraph (b)(4)(ii) of this section or by shipping documents.

(8) Any scale used within the United States to weigh containers for the purpose of the requirements of this section shall meet the accuracy standards of the state or local public authority in which the scale is located.

(c) No container or containers shall be hoisted if their actual gross weight exceeds the weight marked as required in paragraph (a)(2) of this section, or if it exceeds the capacity of the crane or other hoisting device intended to be used.

(d)(1) Marked or designated areas shall be set aside within a container or roll-on roll-off terminal for passage of employees to and from active cargo transfer points, except where transportation to and from those points is provided by the employer.

(2) The employer shall direct employees to stay clear of the area beneath a suspended container.

(e) Each employee working in the immediate area of container handling equipment or in the terminal's traffic lanes shall wear a high visibility vest (or equivalent protection).⁷

NOTE TO PARAGRAPH (e): High visibility vests or equivalent protection means high visibility/retro-reflective materials which are intended to make the user clearly visible by day through the use of high visibility (fluorescent) material and in the dark by vehicle headlights through the use of retro-reflective material. For example, an acceptable area of material for a vest or equivalent protection is .5 m² (760 in.²) for fluorescent (background) material and .13m² (197 in.²) for retro-reflective material. Vests or equivalent protection, such as high visibility/retro-reflective coveralls, that are available for industrial use, may also be acceptable.

(f) Containers shall be handled using lifting fittings or other arrangements suitable and intended for the purpose as set forth in paragraphs (f)(1) through (f)(4) of this section, unless damage to an intermodal container makes special means of handling necessary.

(1) Loaded intermodal containers of 20 feet (6.1 m) or more in length shall be hoisted as follows:

(i) When hoisting containers by the top fittings, the lifting forces shall be applied vertically from at least four

⁷Decals on hard hats will not be considered equivalent protection for the purposes of this paragraph.

such fittings. A less than vertical lift is permitted only under the following conditions:

(A) The container being lifted is an ISO closed box container;

(B) The condition of the box is sound;

(C) The speed of hoisting and lowering is moderated when heavily laden containers⁸ are encountered;

(D) The lift angle is at 80 to 90 degrees;

(E) The distance between the lifting beam and the load is at least 8 feet and 2.4 inches (2.5 m); and

(F) The length of the spreader beam is at least 16.3 feet (5 m) for a 20-foot container, and at least 36.4 feet (11.1 m) for a 40-foot container.

(i) If hoisted from bottom fittings, the hoisting connections shall bear on the fittings only, making no other contact with the container. The angles of the four bridle legs shall not be less than 30° to the horizontal in the case of 40 foot (12.2 m) containers, 37° in the case of 30 foot (9.1 m) containers, and 45° in the case of 20 foot (6.1 m) containers.

(ii) Lifting containers by fork lift trucks or by grappling arms from above or from one side may be done only if the container is designed for this type of handling.

(iv) Other means of hoisting may be used only if the containers and hoisting means are designed for such use.

(2)(i) When using intermodal container spreaders that employ lanyards for activation of load disengagement, all possible precautions shall be taken to prevent accidental release of the load.

(ii) Intermodal container spreader twistlock systems shall be designed and used so that a suspended load cannot accidentally be released.

(3) Flat bed trucks or container chassis used to move intermodal containers shall be equipped with pins, flanges, or other means to prevent the container from shifting.

(4) After July 27, 1998, flat bed, low boy trailers (mafis) and other similar equipment used to transport containers

⁸ A heavily laden container is one that is loaded to within 20 percent of its rated capacity.

shall be marked with their cargo capacities and shall not be overloaded.

(5) Each tractor shall have all brake air lines connected when pulling trailers equipped with air brakes and shall have the brakes tested before commencing operations.

(g)(1) Intermodal containers shall be inspected for defects in structural members or fittings before handling.

(2) Any intermodal container found to be unsafe shall be identified as such, promptly removed from service and repaired before being returned to service.

(h) Containers shall not be hoisted unless all engaged chassis twist locks are released.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40200, July 25, 1997; 65 FR 40940, June 30, 2000]

§ 1917.73 Terminal facilities handling menhaden and similar species of fish (see also § 1917.2, definition of hazardous cargo, material, substance or atmosphere).

(a)(1) Tanks in terminal areas used for receiving or storing ballwater for recirculating into vessel holds in discharging operations shall be opened or ventilated to minimize contamination of water circulated to the vessel. Ballwater tanks shall be thoroughly drained upon completion of each day's operations and shall be left open to the air. Drainage is unnecessary when ballwater has been treated to remove hydrogen sulfide-producing contaminants and the efficiency of such treatment has been established by the employer.

(2) Before employees enter a dock tank, it shall first be drained, rinsed and tested for hydrogen sulfide and oxygen deficiency. Employees shall not enter the tank when the hydrogen sulfide level exceeds 20 ppm or oxygen content is less than 19.5 percent, except in emergencies.

(3) Tests shall be conducted by designated personnel with suitable test equipment and respiratory protective equipment complying with the provisions of § 1910.134 of this chapter.

(b) Pipelines and hoses on the dock or terminal used for receiving and circulating used ballwater shall be completely drained upon completion of

each day's operation and left open to the air.

(c) At least four units of respiratory protective equipment consisting of supplied-air respirators or self-contained breathing apparatus complying with the requirements of § 1910.134 of this chapter shall be available in a suitably labeled cabinet for immediate use in case of emergency caused by oxygen deficiency or hydrogen sulfide. Any employee entering a tank in an emergency shall, in addition to respiratory protective equipment, wear a lifeline and safety harness to facilitate rescue. At least two other employees, similarly equipped, shall be continuously stationed outside the tank to observe and to provide rescue services.

(d) The plant superintendent and foremen shall be trained and knowledgeable about the hazards of hydrogen sulfide and oxygen deficiency. They shall be trained in the use of appropriate respiratory and other protective equipment, and in rescue procedures. Other supervisory plant personnel shall be informed of these hazards and instructed in the necessary safety measures, including use of respiratory and rescue equipment.

(e) Supervisory personnel shall be on hand at dockside to supervise discharging of ballwater from vessels.

[48 FR 30909, July 5, 1983, as amended at 65 FR 40940, June 30, 2000]

Subpart E—Personal Protection

§ 1917.91 Eye and face protection.

(a)(1) The employer shall ensure that each affected employee uses appropriate eye and/or face protection where there are exposures to eye and/or face hazards. Such equipment shall comply with American National Standards Institute, ANSI Z-87.1-1989, "Practice for Occupational and Educational Eye and Face Protection."

(2) For employees wearing corrective spectacles, eye protection equipment required by paragraph (a)(1) of this section must be of a type which can be worn over spectacles. Prescription ground safety lenses may be substituted if they provide equivalent protection.

(3) For additional requirements covering eye protection against radiant energy, see § 1917.152(h).

(b) Eye protection equipment shall be maintained in good condition.

(c) Used eye protection equipment shall be cleaned and disinfected before reissuance to another employee.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997]

§ 1917.92 Respiratory protection.

(See § 1917.1(a)(2)(x)).

[65 FR 40941, June 30, 2000]

§ 1917.93 Head protection.

(a) The employer shall ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling objects.

(b) Such equipment shall comply with American National Standards Institute, ANSI Z-89.1-1986, "Personnel Protection-Protective Headwear for Industrial Workers-Requirements."

(c) Protective hats previously worn shall be cleaned and disinfected before issuance by the employer to another employee.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997]

§ 1917.94 Foot protection.

(a) The employer shall ensure that each affected employee wears protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects or objects piercing the sole.

(b) Such equipment shall comply with American National Standards

Institute, ANSI Z-41-1991, "American National Standard for Personal Protection-Protective Footwear."

[62 FR 40201, July 25, 1997]

§ 1917.95 Other protective measures.

(a) *Protective clothing.* (1) Employees performing work that requires special protective clothing shall be directed by the employer to wear the necessary special protective clothing.

(2) When necessary, protective clothing previously worn shall be cleaned and disinfected before reissuance.

(b) *Personal flotation devices (PFDs)*. (1) The employer shall provide, and shall direct the wearing of PFDs for those employees, such as line handlers, who are engaged in work in which they may be pulled into the water:

(i) When such employees are working in isolation, or

(ii) Where physical limitations of available working space creates a hazard of falling into the water, or

(iii) Where the work area is obstructed by cargo or other obstacles so as to prevent employees from obtaining safe footing for their work.

(2) 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.

(3) Personal flotation devices shall be maintained in safe condition and shall be considered unserviceable when damaged so as to affect buoyancy or fastening capability.

(c) *Emergency facilities*. When employees are exposed to hazardous substances which may require emergency bathing, eye washing or other facilities, the employer shall provide such facilities and maintain them in good working order.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40941, June 30, 2000]

Subpart F—Terminal Facilities

§ 1917.111 Maintenance and load limits.

(a) The structural integrity of docks, piers, wharves, terminals and working surfaces shall be maintained.

(b) Maximum safe load limits, in pounds per square foot (kilograms per square meter), of floors elevated above ground level, and pier structures over the water shall be conspicuously posted in all cargo areas.

(c) Maximum safe load limits shall not be exceeded.

(d) All walking and working surfaces in the terminal area shall be maintained in good repair.

§ 1917.112 Guarding of edges.

(a) *Vehicle protection*. (1) Vehicle curbs, bull rails, or other effective barriers at least six inches (15.24 cm) in height shall be provided at the water-side edges of aprons and bulkheads, except where vehicles are prohibited. Curbs or bull rails installed after October 3, 1983, shall be at least 10 inches (25.4 cm) in height.

(2) The provisions of paragraph (a)(1) of this section also apply at the edge of any fixed level above the common floor area from which vehicles may fall, except at loading docks, platforms and skids where cargo is moved by vehicles.

(b) *Employee protection*. (1) Guardrails shall be provided at locations where employees are exposed to floor or wall openings or waterside edges, including bridges or gangway-like structures leading to pilings or vessel mooring or berthing installations, which present a hazard of falling more than 4 feet (1.22 m) or into the water, except as specified in paragraph (b)(2) of this section.

(2) Guardrails are not required:

(i) At loading platforms and docks;

(ii) At waterside edges used for cargo handling;

(iii) On the working sides of work platforms, skids or similar workplaces; or

(iv) On railroad rolling stock, highway vehicles, intermodal containers or similar equipment.

(3) Where guardrails are impracticable due to machinery requirements or work processes, an alternate means of protecting employees from falling, such as nets, shall be used.

(c) *Criteria for guardrails*. Guardrails shall meet the following criteria:

(1) They shall be capable of withstanding a force of at least 200 pounds (890 N) applied in any direction at mid-span of the top rail (when used), or at the uppermost point if there is no top rail.

(2) If not of solid baluster, grillwork, slatted or similar construction, guardrails shall consist of top rails and midrails. Midrails, when used, shall be positioned at approximately half the height of the top rail.

(3) The top surface of guardrails installed before October 3, 1983, shall be at least 36 inches (0.91 m) high. Those installed after October 3, 1983, shall be

42 inches (1.07 m), plus or minus 2 inches (5.1 cm), high.

(4) Any non-rigid railing such as chain or wire rope shall have a maximum sag limit at the mid-point between posts of not more than 6 inches (15.24 cm).

(5) Top rails shall be free of puncture and laceration hazards.

(6) Rail ends shall not overhang to constitute a hazard, but this does not prohibit scrollwork, boxed ends or similar non-hazardous projections.

(d) *Toeboards*. Toeboards shall be provided when employees below could be exposed to falling objects such as tools. Toeboards shall be at least 3½ inches (8.9 cm) in height from top edge to floor level, and be capable of withstanding a force of 50 pounds (222 N) applied in any direction. Drainage clearance under toeboards is permitted.

(e) *Stair railings*. Stair railings shall be capable of withstanding a force of at least 200 pounds (890 N) applied in any direction, and shall not be more than 36 inches (0.91 m) nor less than 32 inches (0.81 m) in height from the upper top rail surface to the tread surface in line with the leading edge of the tread. Railings and midrails shall be provided at any stairway having four or more risers, as follows:

(1) For stairways less than 44 inches (1.12 m) wide, at least one railing; and

(2) For stairways more than 44 inches (1.12 m) but less than 88 inches (2.24 m) wide, a stair rail or handrail on each side, and if 88 or more inches wide, an additional intermediate handrail.

(f) *Condition*. Railings shall be maintained free of sharp edges and in good repair.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40941, June 30, 2000]

§ 1917.113 Clearance heights.

Clearance heights shall be prominently posted where the height is insufficient for vehicles and equipment.

§ 1917.114 Cargo doors.

(a) *Mechanically operated*. (1) Cargo door counterweights shall be guarded.

(2) Lift trucks and cranes shall not be used to move mechanically operated doors except when necessary during repair on the doors, in which case ropes

or other guarding shall be provided to prevent entry into the area where the door may fall or slide.

(3) Vertically operated doors partially opened for work or ventilation shall be secured to prevent accidental closing.

(b) *Tackle operated*. (1) The door shall be connected to its lifting tackle with shackles or equally secure means.

(2) Lifting bridles and tackles shall have a safety factor of five, based upon maximum anticipated static loading conditions.

(3) Devices shall be provided to hold overhead doors in the open position and to secure them when closed.

(4) Lifting gear and hardware shall be maintained in safe condition.

(5) Lifting ropes, when used, shall be placed out of the work area and off the floor.

(c) *Horizontal sliding*. (1) Horizontal sliding door rollers shall be constructed to prevent the door from jumping from overhead tracks.

(2) Sliding doors shall be secured to prevent them from swinging.

§ 1917.115 Platforms and skids.

(a) Platforms and skids extending from piers, transit sheds or lofts and used for landing or hooking on drafts shall be provided at the open sides with guardrails meeting the requirements of § 1917.112(c) or alternate means, such as nets, to protect employees against falls.

(b) Any employee working below a second-story platform or skid shall be protected from falling objects by a net stretched from the platform or skid to the vessel.

(c) Platforms and skids shall be strong enough to bear the loads handled and shall be maintained in safe condition. Safe working loads, which shall be posted or marked on or adjacent to platforms and skids, shall have a minimum safety factor of five for any part, based upon maximum anticipated static loading conditions and the ultimate strength of the construction material.

(d) The employer shall provide and maintain platform and skid attachments that will prevent accidental movement of the skid or platform.

§ 1917.116 Elevators and escalators.

(a) "Elevator" means a permanent hoisting and lowering mechanism with a car or platform moving vertically in guides and serving two or more floors of a structure. The term excludes such devices as conveyors, tiering or piling machines, material hoists, skip or furnace hoists, wharf ramps, lift bridges, car lifts and dumpers.

(b) "Escalator" means a power-driven continuous moving stairway principally intended for the use of persons.

(c) No elevator or escalator with a defect which affects safety shall be used.

(d) Elevator safety devices shall not be overridden or made inoperable.

(e) Elevators and escalators shall be thoroughly inspected at intervals not exceeding one year. Additional monthly inspections for satisfactory operation shall be conducted by designated persons. Records of the results of the latest annual elevator inspections shall be posted in elevators. Records of annual escalator inspections shall be posted in the vicinity of the escalator or be available at the terminal.

(f) Elevator landing openings shall be provided with doors, gates or equivalent protection which shall be in place when the elevator is not at that landing, to prevent employees from falling into the shaft.

(g) The elevator's or escalator's maximum load limits shall be posted and not exceeded. Elevator load limits shall be posted conspicuously both inside and outside of the car.

(h) Elevators shall be operated only by designated persons except for automatic or door interlocking elevators which provide full shaft door closing and automatic car leveling.

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984; 61 FR 5509, Feb. 13, 1996]

§ 1917.117 Manlifts.

(a) *Inspection.* Manlifts shall be inspected monthly by a designated person. Safety switches shall be checked weekly. Manlifts found to be unsafe shall not be operated until repaired. Inspections shall include at least the following:

- (1) Step fastenings;
- (2) Rails;

- (3) Rail supports and fastenings;
- (4) Roller and slides;
- (5) Belt and belt tension;
- (6) Handholds and fastenings;
- (7) Floor landings;
- (8) Guardrails;
- (9) Lubrication;
- (10) Safety switches;
- (11) Warning signs and lights;
- (12) Illumination;
- (13) Drive pulley;
- (14) Bottom (boot) pulley and clearance;
- (15) Pulley supports;
- (16) Motor;
- (17) Drive mechanism;
- (18) Brake;
- (19) Electrical switches;
- (20) Vibration and misalignment;
- (21) "Skip" on up or down run when mounting the step (indicating worn gears); and
- (22) Emergency exit ladders.

(b) *Inspection records.* Inspection records shall be kept for at least one year. The record of the most recent inspection shall be posted in the vicinity of the manlift or in the terminal.

(c) *Emergency stop.* An emergency stop device shall be available within easy reach from any position on the belt.

(d) *Instructions.* Manlift use instructions shall be conspicuously posted.

(e) *Top floor warning sign and light.* An illuminated sign and red light that are visible to the user shall be provided under the top floor opening of the manlift to warn the user to get off at that floor.

(f) *Bottom floor warning sign.* A sign visible to descending passengers shall be provided to warn them to get off at the bottom floor.

(g) *Upper limit stop.* An automatic stop device shall be provided to stop the manlift when a loaded step passes the top landing, except that manlifts installed after October 3, 1983 shall have two such devices.

(h) *Handholds and steps.* Each step shall be provided with a corresponding handhold.

(i) *Emergency ladder.* A fixed emergency ladder accessible from any position on the lift and in accordance with the requirements of § 1917.118(d) shall be provided for the entire run of the manlift.

(j) *Landings.* (1) Clear and unobstructed landing spaces shall be provided at each level. Manlifts constructed after October 3, 1983 and that have a distance of 50 feet (15.24 m) or more between floor landings shall have an emergency landing every 25 feet (7.62 m) or less of manlift travel.

(2) Open sides of emergency landings shall be protected by guardrails.

(3) Floor landing entrances and exits shall be guarded by mazes, self-closing gates, or equivalent devices.

(4) Landings shall be of sufficient size and strength to support 250 pounds (1,112 N).

(k) *Floor opening guards.* The ascending sides of manlift floor openings shall be provided with cones or bevel guards to direct the user through the openings.

(l) *Maintenance.* Manlifts shall be equipped, maintained, and used in accordance with the manufacturer's specifications, which shall be available at the terminal.

(m) *Bottom pulley.* (1) The lower pulley shall be supported by the lowest landing.

(2) Sides of the bottom pulley support shall be guarded to prevent contact with the pulley or the steps.

(n) *Top clearance.* A clearance of at least 11 feet (3.35 m) shall be provided between the top landing and the ceiling.

(o) *Brakes.* Manlifts shall be equipped with brakes that are:

- (1) Self-engaging;
- (2) Electrically released; and
- (3) Capable of stopping and holding the manlift when the descending side is loaded with the maximum rated load.

[48 FR 30909, July 5, 1983, as amended at 65 FR 40941, June 30, 2000]

§ 1917.118 Fixed ladders.

(a) *Scope and applicability.* This section applies to all fixed ladders except:

- (1) Ladders forming an integral part of railway cars, highway carriers, cargo containers or other transportation carrier equipment;
- (2) Climbing devices such as step bolts or structural members of tanks and towers;
- (3) Ladders built into or vertically attached to tubular scaffold framing; and

(4) Ladders used only for fire-fighting or emergency purposes.

(b) *Definitions.* (1) *Cage* (basket guard) means a barrier enclosing or nearly enclosing a ladder's climbing space and fastened to one or both of the ladder's side rails or to another structure.

(2) *Fixed ladder* means a ladder, including individual rung ladders, permanently attached to a structure, building or piece of equipment.

(3) *Ladder safety device* means a support system limiting an employee's drop or fall from the ladder, and which may incorporate friction brakes, lifelines and lanyards, or sliding attachments.

(4) *Well* means a permanent complete enclosure around a fixed ladder, which is attached to the walls of the well.

(c) *Defects.* (1) Ladders with broken, split or missing rungs, steps or rails, broken welds or connections, corrosion or wastage or other defect which may affect safe use shall be removed from service.

(2) Ladder repairs shall provide strength at least equivalent to that of the original ladder.

(d) *Ladder specifications.* (1)(i) Ladders installed before October 3, 1983, shall be capable of withstanding without damage a minimum concentrated load, applied uniformly over a 3½ inch (8.9 cm) width at the rung center, of 200 pounds (89 N).

(ii) Ladders installed after October 3, 1983 shall be capable of withstanding 250 pounds (1,112 N) applied as described in paragraph (d)(1)(i) of this section. If used by more than one employee simultaneously, the ladder as a unit shall be capable of simultaneous additional loading in 250 pound (1,112 N) increments for each additional employee, applied to a corresponding number of rungs. The unit shall have a safety factor of four (4), based on ultimate strength, in the designed service.

(2)(i) Ladders installed before October 3, 1983, shall have rungs evenly spaced from nine to 16½ inches (22.9 to 41.9 cm) apart, center to center.

(ii) Ladders installed after October 3, 1983 shall have rungs evenly spaced from 12±2 inches (30.5±5.08 cm) apart, center to center.

(3)(i) Ladders installed before October 3, 1983 shall have a width between side rails of at least 10 inches (25.4 cm).

(ii) Ladders installed after October 3, 1983 shall have a width between side rails of at least 12 inches (30.48 cm).

(4) The minimum distance between the rung center line and the nearest permanent object behind the rung shall be 4 inches (10.16 cm), except that in ladders installed after October 3, 1983, the minimum distance shall be 7 inches (17.78 cm) unless physical limitations make a lesser distance, not less than 4½ inches (11.43 cm), necessary.

(5) When a ladder passes through an opening or past overhead obstructions, a minimum 24 inch (.61 m) clearance shall exist between the climbing side and any obstruction. Where this distance is less than 30 inches (0.76 m), a deflection device shall be installed for guidance through the opening.

(6) The side rails of ladders shall extend at least 36 inches (0.91 m) above the top landing surface, unless grab bars or equivalent holds are provided.

(7) Ladders whose pitch exceeds 90° to the horizontal (slanting backward on the climbing side) shall not be used.

(e) *Protection against falls.* (1) Fixed ladders more than 20 feet (6.1 m) in height shall be provided with a cage, well, or ladder safety device.

(2) When a well or cage is used, ladders with length of climb exceeding 30 feet (9.14 m) shall comply with the following provisions:

(i) The ladder shall consist of multiple sections not exceeding 30 feet (9.14 m) each;

(ii) Each section shall be horizontally offset from adjacent sections, except as specified in paragraph (e)(2)(iv) of this section, and

(iii) A landing platform capable of supporting a load of 100 pounds per square foot (4.79 kPa) and fitted with guardrails complying with Sec. 1917.112(c) shall be provided at least every 30 feet (9.14 m), except as specified in paragraph (e)(2)(iv) of this section.

(iv) For ladders installed after October 3, 1983, offset sections and landing platforms are not required if hinged platforms capable of supporting 100 pounds per square foot (4.79 kPa), and which are kept closed except when

opened for passage, are within the cage or well at intervals not exceeding 30 feet (9.14 m).

(3) Ladders equipped with ladder safety devices shall have rest platforms;

(i) Capable of supporting a load of 100 pounds per square foot (4.79 kPa);

(ii) Located at intervals of 150 feet (45.7 m) or less; and

(iii) Protected by guardrails complying with §1917.112(c) of three sides.

(4) Where used, ladder safety devices shall:

(i) Be installed and maintained in accordance with the manufacturer's instructions, which shall be available for inspection;

(ii) Be repaired only with replacement parts having performance capability at least equal to that of the original parts;

(iii) Have a connection length between carrier centerlines and safety belts of 10±2 inches (25.4±5.08 cm); and

(iv) Be installed in a manner that does not reduce the ladder's structural capability.

(5) Ladder cages or wells shall:

(i) Be of rigid construction that allows unobstructed use but prevents an employee from falling through or dislodging the cage or well by falling against it;

(ii) Have smooth inner surfaces;

(iii) Extend at least 36 inches (0.91m) above landings; and

(iv) Extend to within 8 feet (2.44 m) above the ground or base, except that a maximum of 20 feet (6.1 m) is permitted where the cage or well would extend into traffic lanes.

(6) Ladders installed after (effective date of standard) on radio, microwave communications, electrical power and similar towers, poles and structures, including stacks and chimneys, shall meet the requirements of this paragraph (e).

(f) *Individual rung ladders.* Ladders consisting of individual rungs that are attached to walls, conical manhole sections or river cells shall:

(1) Be capable of supporting a load of 350 pounds (1557 N) without deformation;

(2) Form a continuous ladder, uniformly spaced vertically from 12 inches to 16 inches (30.5 to 40.6 cm) apart, with a minimum width of 10 inches (25.4 cm)

and projecting at least 4½ inches (11.43 cm) from the wall;

(3) Be so constructed that an employee's foot cannot slide off the ends; and

(4) Be firmly attached and without sharp edges.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40941, June 30, 2000]

§ 1917.119 Portable ladders.

(a) *Scope and applicability.* This section applies to all portable ladders, including job-made ladders for temporary use, unless otherwise specified.

(b) *Standards for existing manufactured portable ladders.* (1) Rungs of manufactured portable ladders obtained before October 3, 1983, shall be capable of supporting a 200-pound (890 N) load without deformation.

(2) Rungs shall be evenly spaced from 9 to 16½ inches (22.9 to 41.9 cm), center to center.

(3) Rungs shall be continuous members between rails. Each rung of a double-rung ladder (two side rails and a center rail) shall extend the full width of the ladder.

(4) Width between side rails at the base of the ladder shall be at least 12 inches (30.48 cm) for ladders 10 feet (3.05 m) or less in overall length, and shall increase at least ¼ inch (0.64 cm) for each additional 2 feet (0.61 m) of ladder length.

(c) *Standards for manufactured portable ladders.* Portable manufactured ladders obtained after January 21, 1998 shall bear identification indicating that they meet the appropriate ladder construction requirements of the following standards:

ANSI A14.1-1990, Safety Requirements for Portable Wood Ladders

ANSI A14.2-1990, Safety Requirements for Portable Metal Ladders

ANSI A14.5-1992, Safety Requirements for Portable Reinforced Plastic Ladders

(d) *Standards for job-made portable ladders.* Job-made ladders shall:

(1) Have a minimum and uniform distance between rungs of 12 inches (30.48 cm), center to center;

(2) Are capable of supporting a 250-pound (1,112 N) load without deformation; and

(3) Have a minimum width between side rails of 12 inches (30.48 cm) for ladders 10 feet (3.05 m) in height. Width between rails shall increase at least ¼ inch (0.64 cm) for each additional 2 feet (0.61 m) of ladder length.

(e) *Maintenance and inspection.* (1) The employer shall maintain portable ladders in safe condition. Ladders with the following defects shall not be used and either shall be tagged as unusable if kept on the premises or shall be removed from the worksite:

(i) Broken, split or missing rungs, cleats or steps;

(ii) Broken or split side rails;

(iii) Missing or loose bolts, rivets or fastenings;

(iv) Defective ropes; or

(v) Any other structural defect.

(2) Ladders shall be inspected for defects prior to each day's use, and after any occurrence, such as a fall, which could damage the ladder.

(f) *Ladder usage.* (1) Ladders made by fastening rungs or devices across a single rail are prohibited.

(2) Ladders shall not be used:

(i) As guys, braces or skids; or

(ii) As platforms, runways or scaffolds.

(3) Metal and wire-reinforced ladders with wooden side rails shall not be used when employees on the ladder might come into contact with energized electrical conductors.

(4) Individual sections from different multi-sectional ladders or two or more single straight ladders shall not be tied or fastened together to achieve additional length.

(5) Except for combination ladders, self-supporting ladders shall not be used as single straight ladders.

(6) Unless intended for cantilever operation, non-self-supporting ladders shall not be used to climb above the top support point.

(7) Ladders shall extend at least 36 inches (0.91 m) above the upper support level if employees are to leave or mount the ladder at that level, except that where such extension is impractical other equivalent means such as grab bars may be used to provide a hand grip.

(8) Ladders shall be securely positioned on a level and firm base.

(9) Ladders shall be fitted with slip-resistant bases and secured at top or bottom to prevent the ladder from slipping.

(10) The employer shall direct that ladders shall be placed so that employees climbing are not exposed to injury from projecting objects or doors that open toward the ladder.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40941, June 30, 2000]

§ 1917.120 Fixed stairways.

(a) *Definition.* "Fixed stairway" means interior and exterior stairs serving machinery, tanks and equipment, and stairs to or from floors, platforms or pits. The term does not apply to stairs intended only for fire exit purposes, to articulated stairs (the angle of which changes with the rise and fall of the base support) or to stairs forming an integral part of machinery.

(b) *New installations.* (1) Fixed stairs installed after October 3, 1983 shall be positioned within the range of 30 degrees to 50 degrees to the horizontal with uniform riser height and tread width throughout each run and be capable of a minimum loading of 100 pounds per square foot (445 N) and a minimum concentrated load of 300 pounds (1,334 N) at the center of any treadspan. Riser height shall be from 6 to 7.5 inches (15.24 to 19.05 cm), stair width a minimum of 22 inches (55.88 cm) between vertical barriers, tread depth a minimum of 12±2 inches (30.48±5.08 cm), and tread nosing shall be straight leading edges.

(2) Stair landings shall be at least 20 inches (50.8 cm) in depth. Where doors or gates open on a stairway, a landing platform shall be provided. Door swing shall not reduce effective standing area on the landing to less than 18 inches (45.72 cm) in depth.

(3) Fixed stairs having four or more risers shall have stair railings or handrails complying with §1917.112(c)(1).

(4) Railing height from tread surface at the riser face shall be 33±3 inches (83.82 cm ±7.62 cm).

(5) Restricted areas. When physical features require stairs steeper than those provided for by paragraph (b)(1) of this section, stairs at angles of 50°

75° from the horizontal may be used if they:

(i) Are capable of a single concentrated load of 200 pounds (890 N) at the tread centers;

(ii) Have open treads at least 4 inches (10.16 cm) in depth and 18 inches (45.72 cm) in width with a uniformly spaced vertical rise between treads of 6 to 9.5 inches (15.24 to 24.13 cm); and

(iii) Have handrails that meet the requirements of §1917.112(c)(1) on both sides and that are not less than 30 inches (76.2 cm) in height from the tread surface at the riser face.

(6) Maintenance. Fixed stairways shall be maintained in safe condition and shall not be obstructed.

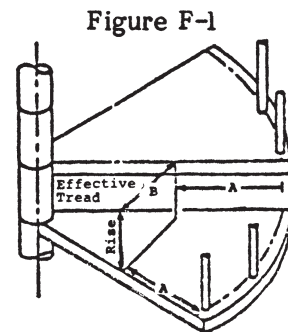
[48 FR 30909, July 5, 1983, as amended at 65 FR 40942, June 30, 2000]

§ 1917.121 Spiral stairways.

(a) *Definition.* "Spiral stairway" means one with closed circular form, uniform sector-shaped treads and a supporting column.

(b) *Requirements.* Spiral stairways shall meet the following requirements:

(1) Stairways shall conform to the minimum dimensions of Figure F-1;



SPIRAL STAIRWAY—MINIMUM DIMENSIONS

	A (half-tread width)	B
Normal use by employees.	11 inches (27.94 cm).	6 inches (15.24 cm).
Limited access	9 inches (22.86 cm).	5 inches (12.7 cm).

(2) Stairway risers shall be uniform and shall range from 6½ to 10½ inches (16.5 to 26.67 cm) in height;

(3) Minimum loading capability shall be 100 pounds per square foot (4.79kN), and minimum tread center concentrated loading shall be 300 pounds (1334 N);

(4) Railings shall conform to the requirements of §1917.112(c)(1). If balusters are used, there shall be a minimum of one per tread. Handrails shall be a minimum of 1¼ inches (3.18 cm) in outside diameter; and

(5) Vertical clearance shall be at least 6 feet, 6 inches (1.98 m) above the top step.

(c) *Maintenance.* Spiral stairways shall be maintained in safe condition.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40942, June 30, 2000]

§ 1917.122 Employee exits.

(a) Employee exits shall be clearly marked.

(b) If an employee exit is not visible from employees' work stations, directional signs indicating routes to the exit shall be posted.

(c) Exits shall be readily accessible and sufficient in number to provide employees with a convenient means of escape in emergencies. A clear passage to the exit shall be maintained.

(d) The minimum width of any employee exit shall be 28 inches (71.12 cm).

[48 FR 30909, July 5, 1983, as amended at 65 FR 40942, June 30, 2000]

§ 1917.123 Illumination.⁹

(a) Working and walking areas shall be illuminated. Unless conditions described in the regulations of the United States Coast Guard (33 CFR 126.15(1) and (n), and 33 CFR 154.570) exist in the case of specific operations, illumination in active work areas (for example, cargo transfer points) shall be of an average minimum light intensity of 5 foot-candles. The illumination in other work areas (for example, farm areas) shall be of an average minimum light intensity of 1 foot-candle except for security purposes when a minimum light intensity of ½ foot-candle shall be

⁹The United States Coast Guard, at 33 CFR 126.15(1) and (n), and 33 CFR 154.570 sets out requirements for illumination at "designated waterfront facilities" and "large oil transfer facilities."

maintained. Where occasional work tasks require more light than that which is consistently and permanently provided, supplemental lighting shall be used.

(b) The lighting intensity shall be measured at the task/working surface, in the plane in which the task/working surface is present.

(c) Lights shall, so far as possible, be placed so that they will not shine in the eyes of employees.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997]

§ 1917.124 Dockboards (car and bridge plates).

(a) *General.* The employer shall provide safe means of passage between different surface levels and across openings.

(b) [Reserved]

(c) *Dockboards (car and bridge plates).*

(1) Dockboards shall be strong enough to support the loads imposed on them.

(2) Portable dockboards shall be anchored in position or be equipped with devices to prevent their movement.

(3) Hand holds or other effective means shall be provided on portable dockboards to permit safe handling.

(4) Positive means shall be used to prevent railcars or highway vehicles from being moved while dockboards or bridge plates are in position.

(5) Be designed, constructed, and maintained to prevent vehicles from running off the edge.¹⁰

(6) Dockboards shall be well maintained.

(d) *Ramps.* (1) Ramps shall be strong enough to support the loads imposed on them and be designed, constructed, and maintained to prevent vehicles from running off the edge.¹¹

(2) Ramps shall be equipped with a guardrail meeting the requirement of §1917.112(c)(1) if the slope is more than

¹⁰When the gap to be bridged to greater than 36 inches (.91 m), an acceptable means of preventing vehicles from running off the edge is a minimum side board height of two and three-quarter inches.

¹¹When the gap to be bridged is greater than 36 inches (.91 m), an acceptable means of preventing vehicles from running off the edge is a minimum side board height of two and three-quarter inches.

20 degrees to the horizontal or if employees could fall more than 4 feet (1.22 m).

(3) Ramps shall have slip-resistant surfaces.

(4) When necessary to prevent displacement by vehicle wheels, steel plates or similar devices used to temporarily bridge or cover uneven surfaces or tracks, shall be anchored.

(5) Ramps shall be well maintained.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40942, June 30, 2000]

§ 1917.125 Guarding temporary hazards.

Ditches, pits, excavations and surfaces in poor repair shall be guarded by readily visible barricades, rails or other equally effective means.

§ 1917.126 River banks.

(a) This section applies to temporary installations or temporary operations near a river bank.

(b) Where working surfaces at river banks slope so steeply that an employee could slip or fall into the water, the outer perimeter of the working surface shall be protected by posting or other portable protection such as roping off. In these situations, employees must wear a personal flotation device meeting the requirements of § 1917.95(b).

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997]

§ 1917.127 Sanitation.

(a) *Washing and toilet facilities.* (1) The employer shall provide accessible washing and toilet facilities sufficient for the sanitary requirements of employees. The facilities shall have:

(i) Running water, including hot and cold or tepid water at a minimum of one accessible location (when cargo handling is conducted at locations without permanent facilities, potable water may be provided in lieu of running water);

(ii) Soap;

(iii) Individual hand towels, clean individual sections of continuous toweling or warm air blowers; and

(iv) Fixed or portable toilets in separate compartments with latch-equipped doors. Separate toilet facilities shall be provided for male and female employees except when toilet rooms will be occupied by only one person at a time.

(2) Washing and toilet facilities shall be regularly cleaned and maintained in good order.

(b) *Drinking water.* (1) Potable drinking water shall be accessible to employees at all times.

(2) Potable drinking water containers shall be clean, containing only water and ice, and shall be fitted with covers.

(3) Common drinking cups are prohibited.

(c) *Prohibited eating areas.* Consumption of food or beverages in areas where hazardous materials are being stored or handled shall be prohibited.

(d) *Garbage and overboard discharges.* Work shall not be conducted in the immediate vicinity of uncovered garbage or in the way of overboard discharges from the vessel's sanitary lines unless employees are protected from the garbage or discharge by a baffle or splash boards.

§ 1917.128 Signs and marking.

(a) *General.* Signs required by this part shall be clearly worded and legible, and shall contain a key word or legend indicating the reason for the sign.

(1) Key words are such words as Danger, Warning, Caution.

(2) Legends are more specific explanations such as High Voltage, Close Clearance, Pedestrian Crossing.

(b) *Specific.* Every marine terminal shall have conspicuously posted signs as follows:

(1) Locations of first aid facilities;

(2) Locations of telephones;

(3) Telephone numbers of the closest ambulance service, hospital or other source of medical attention, police, fire department, and emergency squad (if any); and

(4) Locations of firefighting and emergency equipment and fire exits.

Subpart G—Related Terminal Operations and Equipment

§ 1917.151 Machine guarding.

(a) *Definition.* “Guarded” means shielded, fenced, or enclosed by covers, casings, shields, troughs, spillways or

railings, or guarded by position or location. Examples of guarding methods are guarding by location (positioning hazards so they are inaccessible to employees) and point of operation guarding (using barrier guards, two-hand tripping devices, electronic safety devices, or other such devices).

(b) *General.* (1) Danger zones on machines and equipment used by employees shall be guarded.

(2) Where chips and dust produced by machine operation may result in a hazard to the operator, the machinery shall be equipped with an effective exhaust system at the point of origin, or other equally effective means shall be provided to protect the operator.

(3) Fixed machinery shall be secured to prevent shifting.

(4) A power cut-off device for machinery and equipment shall be provided at the operator's working position.

(5) Machines driven by belts and shafting shall be fitted with a belt-locking or equivalent protective device if the belt can be shifted.

(6) In operations where injury to the operator might result if motors were to restart after power failures, provisions shall be made to prevent machines from automatically restarting upon restoration of power.

(7) The power supply to machines shall be turned off, locked out, and tagged out during repair, adjustment, or servicing.

(8) Machines shall be maintained in a safe working condition.

(9) Only designated employees shall maintain or repair machinery and equipment.

(10) Machines with defects that affect the safety of operation shall not be used.

(c) *Hand-fed circular ripsaws and hand-fed circular crosscut table saws.* Unless fixed or manually adjustable enclosures or guarding provides equivalent protection, hand-fed circular ripsaws and hand-fed circular crosscut table saws shall be guarded as follows to keep employees clear of any danger zones:

(1) They shall be equipped with hoods completely enclosing those portions of the saw above the table and the material being cut;

(2) They shall have spreaders to prevent material from squeezing the saw. Spreaders shall be in true alignment with the saw. Spreaders may be removed only during grooving, dadoing, or rabbeting operations, and shall be replaced at the completion of such operations; and

(3) They shall have non-kickback fingers or dogs to oppose the tendency of the saw to pick up material or throw material toward the operator.

(d) *Swing cutoff saws.* (1) Swing cutoff saws shall have hoods completely enclosing the upper half of the saw, the arbor end and the point of operation at all saw positions to protect the operator from material thrown up by the saw. The hood shall automatically cover the lower portion of the blade, so that when the saw returns to the back of the table the hood rises on top of the fence, and when the saw is moved forward the hood drops on top, remaining in contact with the table or the material.

(2) Swing cutoff saws shall have a device to return the saw automatically to the back of the table without rebound. The device shall not be dependent upon rope, cord or springs.

(3) Devices shall be provided to prevent saws from swinging beyond the front or back edges of the table.

(4) Inverted swing cutoff saws shall have hoods covering the part of the saw protruding above the table top or the material being cut. Hoods shall automatically adjust to the thickness of, and remain in contact with, material being cut.

(e) *Radial saws.* Unless fixed or manually adjustable enclosures or guards provide equivalent protection, radial saws shall be guarded as follows:

(1) The upper hood of radial saws shall enclose the upper portion of the blade up to and including the end of the saw arbor and shall protect the operator from being struck by debris. The sides of the lower exposed portion of the blade shall be guarded to the blade diameter by a device automatically adjusting to the thickness of the stock and remaining in contact with the stock. The lower guard may be removed only when the saw is used for bevel cuts;

(2) Radial saws used for ripping shall have non-kickback fingers or dogs on both sides to oppose the thrust or tendency of the saw to pick up material or throw material toward the operator;

(3) Adjustable stop shall be provided to prevent travel of radial saw blades beyond the table's edge;

(4) Radial saws shall be installed so that the cutting head returns to the starting position without rebound when released; and

(5) The employer shall direct that employees perform ripping and ploughing against the saw turning direction. Rotation direction and an indication of the end of the saw to be used shall be conspicuously marked on the hood.

(f) *Band saws and band resaws.* (1) Saw blades and band saw wheels shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table, to protect employees from point-of-operation hazards and flying debris.

(2) Band saws shall be equipped with brakes to stop the band saw wheel if the blade breaks.

(3) Band saws shall be equipped with a tension control device to keep the blade taut.

(g) *Abrasive wheels and machinery.* (1) Abrasive wheels shall be used only on machines having enclosure guards to restrain pieces of grinding wheels and to protect employees if the wheel breaks, except as provided in paragraphs (g)(2) and (g)(3) of this section. Where the operator must stand in front of the safety guard opening, the safety guard shall be adjustable or have an adjustable tongue or piece at the top of the opening. The safety guard or the tongue shall be adjusted so that they are always close to the periphery of the wheel. Guards shall be aligned with the wheel and the strength of fastenings shall be greater than the strength of the guard.

(2) When the work provides equivalent protection, or when the machine is designed as a portable saw, guards may be constructed with the spindle end, nut and outer flange exposed. When the work entirely covers the side of the wheel, the side covers of the guard may be removed.

(3) Guarding is not required:

(i) For wheels used for internal work while the wheel is contained within the work being ground; or

(ii) For mounted wheels 2 inches (5 cm) and smaller in diameter used in portable operations.

(4) Work rests shall be used on fixed grinding machines. Work rests shall be rigidly constructed and adjustable for wheel wear. They shall be adjusted closely to the wheel with a maximum opening of 1/8-inch (3.18 mm) and shall be securely clamped. Adjustment shall not be made while the wheel is in motion.

(5) Grinding wheels shall fit freely on the spindle. The spindle nut shall be tightened only enough to hold the wheel in place.

(6) Grinding machine wheels shall turn at a speed that is compatible with the rated speed of the wheel.

(7) Flanges and blotters shall be used only with wheels designed for their use. Flanges shall be of a type ensuring retention of pieces of the wheel in case of breakage.

(8) Abrasive wheels with operational defects shall not be used.

(h) *Rotating parts, drives and connections.* (1) Rotating parts, such as gears and pulleys, that are located 7 feet (2.13 m) or less above working surfaces shall be guarded to prevent employee contact with moving parts.

(2) Belt, rope and chain drives shall be guarded to prevent employees from coming into contact with moving parts.

(3) Gears, sprockets and chains shall be guarded to prevent employees from coming into contact with moving parts. This requirement does not apply to manually operated sprockets.

[48 FR 30909, July 5, 1983, as amended at 65 FR 40942, June 30, 2000]

§ 1917.152 Welding, cutting and heating (hot work)¹² (See also § 1917.2, definition of Hazardous cargo, materials, substance, or atmosphere).

(a) *Definition.* "Hot work" means riveting, welding, flame cutting or other fire or spark-producing operation.

¹²The U.S. Coast Guard, at 33 CFR 126.15(c), requires prior permission of the Captain of the Port if welding or other hot work is to be carried out at a facility where dangerous

Continued

(b) *Hot work in confined spaces.* Hot work shall not be performed in a confined space until a designated person has tested the atmosphere and determined that it is not hazardous.

(c) *Fire protection.* (1) To the extent possible, hot work shall be performed in designated locations that are free of fire hazards.

(2) When hot work must be performed in a location that is not free of fire hazards, all necessary precautions shall be taken to confine heat, sparks, and slag so that they cannot contact flammable or combustible material.

(3) Fire extinguishing equipment suitable for the location shall be immediately available and shall be maintained in readiness for use at all times.

(4) When the hot work operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire during hot work and for a sufficient time after completion of the work to ensure that no fire hazard remains. The employer shall instruct all employees involved in hot work operations as to potential fire hazards and the use of firefighting equipment.

(5) Drums and containers which contain or have contained flammable or combustible liquids shall be kept closed. Empty containers shall be removed from the hot work area.

(6) When openings or cracks in flooring cannot be closed, precautions shall be taken to ensure that no employees or flammable or combustible materials on the floor below are exposed to sparks dropping through the floor. Similar precautions shall be taken regarding cracks or holes in walls, open doorways and open or broken windows.

(7) Hot work shall not be performed:

(i) In flammable or potentially flammable atmospheres;

(ii) On or in equipment or tanks that have contained flammable gas or liquid or combustible liquid or dust-producing material, until a designated person has tested the atmosphere inside the equipment or tanks and determined that it is not hazardous; or

(iii) Near any area in which exposed readily ignitable materials such as

cargoes as defined by 33 CFR 126.07 are located or being handled.

bulk sulphur, baled paper or cotton are stored. Bulk sulphur is excluded from this prohibition if suitable precautions are followed, the person in charge is knowledgeable and the person performing the work has been instructed in preventing and extinguishing sulphur fires.

(8)(i) Drums, containers or hollow structures that have contained flammable or combustible substances shall either be filled with water or cleaned, and shall then be ventilated. A designated person shall test the atmosphere and determine that it is not hazardous before hot work is performed on or in such structures.

(ii) Before heat is applied to a drum, container or hollow structure, an opening to release built-up pressure during heat application shall be provided.

(d) *Gas welding and cutting.* (1) Compressed gas cylinders:

(i) Shall have valve protection caps in place except when in use, hooked up or secured for movement. Oil shall not be used to lubricate caps;

(ii) Shall be hoisted only while secured, as on a cradle or pallet, and shall not be hoisted by magnet, choker sling or cylinder caps;

(iii) Shall be moved only by tilting or rolling on their bottom edges;

(iv) Shall be secured when moved by vehicle;

(v) Shall be secured while in use;

(vi) Shall have valves closed when cylinders are empty, being moved or stored;

(vii) Shall be secured upright except when hoisted or carried;

(viii) Shall not be freed when frozen by prying the valves or caps with bars or by hitting the valve with a tool;

(ix) Shall not be thawed by boiling water;

(x) Shall not be exposed to sparks, hot slag, or flame;

(xi) Shall not be permitted to become part of electrical circuits or have electrodes struck against them to strike arcs;

(xii) Shall not be used as rollers or supports;

(xiii) Shall not have contents used for purposes not authorized by the supplier;

(xiv) Shall not be used if damaged or defective;

(xv) Shall not have gases mixed with in, except by gas suppliers;

(xvi) Shall be stored so that oxygen cylinders are separated from fuel gas cylinders and combustible materials by either a minimum distance of 20 feet (6.1 m) or a barrier having a fire-resistance rating of 30 minutes; and

(xvii) Shall not have objects that might either damage the safety device or obstruct the valve placed on top of the cylinder when in use.

(2) *Use of fuel gas.* Fuel gas shall be used only as follows:

(i) Before regulators are connected to cylinder valves, the valves shall be opened slightly (cracked) and closed immediately to clear away dust or dirt. Valves shall not be cracked if gas could reach possible sources of ignition;

(ii) Cylinder valves shall be opened slowly to prevent regulator damage and shall not be opened more than 1½ turns. Any special wrench required for emergency closing shall be positioned on the valve stem during cylinder use. For manifolded or coupled cylinders, at least one wrench shall be immediately available. Nothing shall be placed on top of a cylinder or associated parts when the cylinder is in use.

(iii) Pressure-reducing regulators shall be attached to cylinder valves when cylinders are supplying torches or devices equipped with shut-off valves;

(iv) Cylinder valves shall be closed and gas released from the regulator or manifold before regulators are removed;

(v) Leaking fuel gas cylinder valves shall be closed and the gland nut tightened. If the leak continues, the cylinder shall be tagged, removed from service, and moved to a location where the leak will not be hazardous. If a regulator attached to a valve stops a leak, the cylinder need not be removed from the workplace but shall be tagged and may not be used again before it is repaired; and

(vi) If a plug or safety device leaks, the cylinder shall be tagged, removed from service, and moved to a location where the leak will not be hazardous.

(3) *Hose.* (i) Fuel gas and oxygen hoses shall be easily distinguishable from each other by color or sense of touch. Oxygen and fuel hoses shall not

be interchangeable. Hoses having more than one gas passage shall not be used.

(ii) When oxygen and fuel gas hoses are taped together, not more than four (4) of each 12 inches (10.16 cm) of each 30.48 cm) shall be taped.

(iii) Hose shall be inspected before use. Hose subjected to flashback or showing evidence of severe wear or damage shall be tested to twice the normal working pressure but not less than 200 p.s.i. (1378.96 kPa) before reuse. Defective hose shall not be used.

(iv) Hose couplings shall not unlock or disconnect without rotary motion.

(v) Hose connections shall be clamped or securely fastened to withstand twice the normal working pressure but not less than 300 p.s.i. (2068.44 kPa) without leaking.

(vi) Gas hose storage boxes shall be ventilated.

(4) *Torches.* (i) Torch tip openings shall only be cleaned with devices designed for that purpose.

(ii) Torches shall be inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches with such defects shall not be used.

(iii) Torches shall not be lighted from matches, cigarette lighters, other flames or hot work.

(5) *Pressure regulators.* Pressure regulators, including associated gauges, shall be maintained in safe working order.

(6) *Operational precaution.* Gas welding equipment shall be maintained free of oil and grease.

(e) *Arc welding and cutting.* (1) Manual electrode holders. (i) The employer shall ensure that only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting shall be used.

(ii) Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder shall be insulated against the maximum voltage to ground.

(2) *Welding cables and connectors.* (i) Arc welding and cutting cables shall be insulated, flexible and capable of handling the maximum current required by the operations, taking into account the duty cycles.

(ii) Only cable free from repair or splice for 10 feet (3 m) from the electrode holder shall be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

(iii) When a cable other than the lead mentioned in paragraph (e)(2)(ii) of this section wears and exposes bare conductors, the portion exposed shall not be used until it is protected by insulation equivalent in performance capacity to the original.

(iv) Insulated connectors of equivalent capacity shall be used for connecting or splicing cable. Cable lugs, where used as connectors, shall provide electrical contact. Exposed metal parts shall be insulated.

(3) *Ground returns and machine grounding.* (i) Ground return cables shall have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.

(ii) Structures or pipelines, other than those containing gases or flammable liquids or conduits containing electrical circuits, may be used in the ground return circuit if their current-carrying capacity equals or exceeds the total maximum output capacities of the welding or cutting units served.

(iii) Structures or pipelines forming a temporary ground return circuit shall have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit shall cause rejection as a ground circuit.

(iv) Structures or pipelines acting continuously as ground return circuits shall have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.

(v) Arc welding and cutting machine frames shall be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits shall have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(vi) Ground connections shall be mechanically and electrically adequate to carry the current.

(4) When electrode holders are left unattended, electrodes shall be re-

moved and holders placed to prevent employee injury.

(5) Hot electrode holders shall not be dipped in water.

(6) The employer shall ensure that when arc welders or cutters leave or stop work or when machines are moved, the power supply switch shall be kept in the off position.

(7) Arc welding or cutting equipment having a functional defect shall not be used.

(8)(i) Arc welding and cutting operations shall be separated from other operations by shields, screens, or curtains to protect employees in the vicinity from the direct rays and sparks of the arc.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with paragraph (h) of this section. When welders are exposed to their own arc or to each other's arc, they shall wear filter lenses complying with the requirements of paragraph (h) of this section.

(9) The control apparatus of arc welding machines shall be enclosed, except for operating wheels, levers, and handles.

(10) Input power terminals, top change devices and live metal parts connected to input circuits shall be enclosed and accessible only by means of insulated tools.

(11) When arc welding is performed in wet or high-humidity conditions, employees shall use additional protection, such as rubber pads or boots, against electric shock.

(f) *Ventilation and employee protection in welding, cutting and heating—(1) Mechanical ventilation requirements.* The employer shall ensure that general mechanical ventilation or local exhaust systems shall meet the following requirements:

(i) General mechanical ventilation shall maintain vapors, fumes and smoke below a hazardous level.

(ii) Local exhaust ventilation shall consist of movable hoods positioned close to the work and shall be of such capacity and arrangement as to keep breathing zone concentrations below hazardous levels.

(iii) Exhausts from working spaces shall be discharged into the open air, clear of intake air sources;

(iv) Replacement air shall be clean and respirable; and

(v) Oxygen shall not be used for ventilation, cooling or cleaning clothing or work areas.

(2) *Hot work in confined spaces.* Except as specified in paragraphs (f)(3)(ii) and (f)(3)(iii) of this section, when hot work is performed in a confined space the employer shall ensure that:

(i) General mechanical or local exhaust ventilations shall be provided; or

(ii) Employees in the space shall wear supplied air respirators in accordance with §1910.134 and a standby on the outside shall maintain communication with employees inside the space and shall be equipped and prepared to provide emergency aid.

(3) *Welding, cutting or heating of toxic metals.* (i) In confined or enclosed spaces, hot work involving the following metals shall only be performed with general mechanical or local exhaust ventilation that ensures that employees are not exposed to hazardous levels of fumes:

(A) Lead base metals;

(B) Cadmium-bearing filler materials; and

(C) Chromium-bearing metals or metals coated with chromium-bearing materials.

(ii) In confined or enclosed spaces, hot work involving the following metals shall only be performed with local exhaust ventilation meeting the requirements of paragraph (f)(1) of this section or by employees wearing supplied air respirators in accordance with §1910.134;

(A) Zinc-bearing base or filler metals or metals coated with zinc-bearing materials;

(B) Metals containing lead other than as an impurity, or coated with lead-bearing materials;

(C) Cadmium-bearing or cadmium-coated base metals; and

(D) Metals coated with mercury-bearing materials.

(iii) Employees performing hot work in confined or enclosed spaces involving beryllium-containing base or filler metals shall be protected by local exhaust ventilation and wear supplied air

respirators or self-contained breathing apparatus, in accordance with the requirements of §1910.134.

(iv) The employer shall ensure that employees performing hot work in the open air that involves any of the metals listed in paragraphs (f)(3)(i) and (f)(3)(ii) of this section shall be protected by respirators in accordance with the requirements of §1910.134, and those working on beryllium-containing base or filler metals shall be protected by supplied air respirators, in accordance with the requirements of §1910.134.

(v) Any employee exposed to the same atmosphere as the welder or burner shall be protected by the same type of respiratory and other protective equipment as that worn by the welder or burner.

(4) *Inert-gas metal-arc welding.* Employees shall not engage in and shall not be exposed to the inert-gas metal-arc welding process unless the following precautions are taken:

(i) Chlorinated solvents shall not be used within 200 feet (61 m) of the exposed arc. Surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with the requirements of paragraph (h) of this section. When welders are exposed to their own arc or to each other's arc, filter lenses complying with the requirements of paragraph (h) of this section shall be worn to protect against flashes and radiant energy.

(iii) Employees exposed to radiation shall have their skin covered completely to prevent ultraviolet burns and damage. Helmets and hand shields shall not have leaks, openings or highly reflective surfaces.

(iv) Inert-gas metal-arc welding on stainless steel shall not be performed unless exposed employees are protected either by local exhaust ventilation or by wearing supplied air respirators.

(g) *Welding, cutting and heating on preservative coatings.* (1) Before hot work is commenced on surfaces covered by a preservative coating of unknown flammability, a test shall be

made by a designated person to determine the coating's flammability. Preservative coatings shall be considered highly flammable when scrapings burn with extreme rapidity.

(2) Appropriate precaution shall be taken to prevent ignition of highly flammable hardened preservative coatings. Highly flammable coatings shall be stripped from the area to be heated. An uncoiled fire hose with fog nozzle, under pressure, shall be immediately available in the hot work area.

(3) Surfaces covered with preservative coatings shall be stripped for at least 4 inches (10.16 cm) from the area of heat application or employees shall be protected by supplied air respirators in accordance with the requirements of §1910.134 of this chapter.

(h) *Protection against radiant energy.* (1) Employees shall be protected from radiant energy eye hazards by spectacles, cup goggles, helmets, hand shields or face shields with filter lenses complying with the requirements of this paragraph.

(2) Filter lenses shall have an appropriate shade number, as indicated in Table G-1, for the work performed. Variations of one or two shade numbers are permissible to suit individual preferences.

(3) If filter lenses are used in goggles worn under the helmet, the shade numbers of both lenses equals the value shown in Table G-1 for the operation.

TABLE G-1—FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY

Operation	Shade No.
Soldering	2.
Torch Brazing	3 or 4.
Light cutting, up to 1 inch	3 or 4.
Medium cutting, 1-6 inches	4 or 5.
Heavy cutting, over 6 inches	5 or 6.
Light gas welding, up to 1/8 inch	4 or 5.
Medium gas welding, 1/8-1/2 inch	5 or 6.
Heavy gas welding, over 1/2 inch	6 or 8.
Shielded Metal-Arc Welding 1/16 to 5/32-inch electrodes.	10
Inert-gas Metal-Arc Welding (Non-ferrous) 1/16- to 5/32-inch electrodes.	11.
Shielded Metal-Arc Welding: 3/16- to 1/4-inch electrodes ..	12.
5/16- and 3/8-inch electrodes	14.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40202, July 25, 1997; 65 FR 40942, June 30, 2000]

§ 1917.153 Spray painting (See also § 1917.2, definition of Hazardous cargo, materials, substance, or atmosphere).

(a) *Scope.* This section covers painting operations connected with maintenance of structures, equipment and gear at the marine terminal and of transient equipment serviced at the terminal. It does not apply to overall painting of terminal structures under construction, major repair or rebuilding of terminal structures, or portable spraying apparatus not used regularly in the same location.

(b) *Definitions.* (1) *Spraying area* means any area where flammable vapors, mists or combustible residues, dusts or deposits may be present due to paint spraying operations.

(2) *Spray booth* means an enclosure containing a flammable or combustible spraying operation and confining and limiting the escape of paint, vapor and residue by means of a powered exhaust system.

(3) *Approved* means, for the purpose of this section, that the equipment has been approved for the specified use by a nationally recognized testing laboratory.

(c) *Spray painting requirements for indoor and outdoor spraying areas and booths.* (1) Shut-off valves, containers or piping with attached hoses or flexible connections shall have shut-off valves closed at the connection when not in use.

(2) Pumps used to transfer paint supplies shall have automatic pressure-relieving devices.

(3) Hoses and couplings shall be inspected before use. Hoses showing deterioration, leakage or weakness in the carcass or at the couplings shall be removed from service.

(4)(i) No open flame or spark-producing equipment shall be within 20 feet (6.1 m) of a spraying area unless it is separated from the spraying area by a fire-retardant partition.

(ii) Hot surfaces shall not be located in spraying areas.

(iii) Whenever combustible residues may accumulate on electrical installations, wiring shall be in rigid conduit or in boxes containing no taps, splices or connections.

(iv) Portable electric lights shall not be used during spraying operations. Lights used during cleaning or repairing operations shall be approved for the location in which they are used.

(5) When flammable or combustible liquids are being transferred between containers, both containers shall be bonded and grounded.

(6)(i) Spraying shall be performed only in designated spray booths or spraying areas.

(ii) Spraying areas shall be kept as free from combustible residue accumulations as practicable.

(iii) Residue scrapings, debris, rags, and waste shall be removed from the spraying area as they accumulate.

(7) Spraying with organic peroxides and other dual-component coatings shall only be conducted in sprinkler-equipped spray booths.

(8) Only the quantity of flammable or combustible liquids required for the operation shall be allowed in the spraying area, and in no case shall the amount exceed a one-day supply.

(9) Smoking shall be prohibited and "No Smoking" signs shall be posted in spraying and paint storage areas.

(d) *Additional requirements for spraying areas and spray booths.* (1) Distribution or baffle plates shall be of noncombustible material and shall be removable or accessible for cleaning. They shall not be located in exhaust ducts.

(2) Any discarded filter shall be removed from the work area or placed in water.

(3) Filters shall not be used when the material being sprayed is highly susceptible to spontaneous heating and ignition.

(4) Filters shall be noncombustible or of an approved type. The same filter shall not be used when spraying with different coating materials if the combination of materials may spontaneously ignite.

(5) Spraying areas shall be mechanically ventilated for removal of flammable and combustible vapor and mist.

(6) Mechanical ventilation shall be in operation during spraying operations and long enough thereafter to exhaust hazardous vapor concentrations.

(7) Rotating fan elements shall be nonsparking or the casing shall consist

of or be lined with nonsparking material.

(8) Piping systems conveying flammable or combustible liquids to the spraying booth or area shall be made of metal and be both bonded and grounded.

(9) Air exhausted from spray operations shall not contaminate makeup air or other ventilation intakes. Exhausted air shall not be recirculated unless it is first cleaned of any hazardous contaminants.

(10) Original closed containers, approved portable tanks, approved safety cans or a piping system shall be used to bring flammable or combustible liquids into spraying areas.

(11) If flammable or combustible liquids are supplied to spray nozzles by positive displacement pumps, the pump discharge line shall have a relief valve discharging either to a pump section or detached location, or the line shall be equipped with a device to stop the prime mover when discharge pressure exceeds the system's safe operating pressure.

(12) Wiring, motors and equipment in a spray booth shall be of approved explosion-proof type for Class I, Group D locations and conform to subpart S of Part 1910 of this chapter for Class I, Division 1, Hazardous Locations. Wiring, motors and equipment within 20 feet (6.1m) of any interior spraying area and not separated by vapor-tight partitions shall not produce sparks during operation and shall conform to the requirements of subpart S of Part 1910 of this chapter for Class I, Division 2, Hazardous Locations.

(13) Outside electrical lights within 10 feet (3.05m) of spraying areas and not separated from the areas by partitions shall be enclosed and protected from damage.

(e) *Additional requirements for spray booths.* (1) Spray booths shall be substantially constructed of noncombustible material and have smooth interior surfaces. Spray booth floors shall be covered with noncombustible material. As an aid to cleaning, paper may be used to cover the floor during painting operations if it is removed after the painting is completed.

(2) Spray booths shall be separated from other operations by at least 3 feet

(0.91m) or by fire-retardant partitions or walls.

(3) A space of at least 3 feet (0.91m) on all sides of the spray booth shall be maintained free of storage or combustible materials.

(4) Metal parts of spray booths, exhaust ducts, piping and airless high-pressure spray guns and conductive objects being sprayed shall be grounded.

(5) Electric motors driving exhaust fans shall not be located inside booths or ducts.

(6) Belts shall not enter ducts or booths unless the belts are completely enclosed.

(7) Exhaust ducts shall be made of steel, shall have sufficient access doors to permit cleaning, and shall have a minimum clearance of 18 inches (0.46m) from combustible materials. Any installed dampers shall be fully opened when the ventilating system is operating.

(8) Spray booths shall not be alternately used to spray different types of coating materials if the combination of the materials may spontaneously ignite unless deposits of the first material are removed from the booth and from exhaust ducts before spraying of the second material begins.

[48 FR 30909, July 5, 1983, as amended at 65 FR 40942, June 30, 2000]

§ 1917.154 Compressed air.

Employees shall be protected by chip guarding and personal protective equipment complying with the provisions of subpart E of this part during cleaning with compressed air. Compressed air used for cleaning shall not exceed a pressure of 30 psi. Compressed air shall not be used to clean employees.

§ 1917.155 Air receivers.

(a) *Application.* This section applies to compressed air receivers and equipment used for operations such as cleaning, drilling, hoisting and chipping. It does not apply to equipment used to convey materials or in such transportation applications as railways, vehicles or cranes.

(b) *Gauges and valves.* (1) Air receivers shall be equipped with indicating pressure gauges and spring-loaded safety valves. Safety valves shall prevent re-

ceiver pressure from exceeding 110 percent of the maximum allowable working pressure.

(2) No other valves shall be placed between air receivers and their safety valves.

§ 1917.156 Fuel handling and storage.

(a) *Liquid fuel.* (1) Only designated persons shall conduct fueling operations.

(2) In case of spillage, filler caps shall be replaced and spillage disposed of before engines are started.

(3) Engines shall be stopped and operators shall not be on the equipment during refueling operations.

(4) Smoking and open flames shall be prohibited in areas used for fueling, fuel storage or enclosed storage of equipment containing fuel.

(5) Equipment shall be refueled only at designated locations.

(6) Liquid fuels not handled by pump shall be handled and transported only in portable containers or equivalent means designed for that purpose. Portable containers shall be metal, have tight closures with screw or spring covers and shall be equipped with spouts or other means to allow pouring without spilling. Leaking containers shall not be used.

(7) Flammable liquids may be dispensed in the open from a tank or from other vehicles equipped for delivering fuel to another vehicle only if:

(i) Dispensing hoses do not exceed 50 feet (15.24 m) in length; and

(ii) Any powered dispensing nozzles used are of the automatic-closing type.

(8) Liquid fuel dispensing devices shall be provided with an easily accessible and clearly identified shut-off device, such as a switch or circuit breaker, to shut off the power in an emergency.

(9) Liquid fuel dispensing devices, such as pumps, shall be mounted either on a concrete island or be otherwise protected against collision damage.

(b) *Liquefied gas fuels*—(1) *Fueling locations.* (i) Liquefied gas powered equipment shall be fueled only at designated locations.

(ii) Equipment with permanently mounted fuel containers shall be charged outdoors.

(iii) Equipment shall not be fueled or stored near underground entrances, elevator shafts or other places where gas or fumes might accumulate.

(2) *Fuel containers.* (i) When removable fuel containers are used, the escape of fuel when containers are exchanged shall be minimized by:

(A) Automatic quick-closing couplings (closing in both directions when uncoupled) in fuel lines; or

(B) Closing fuel container valves and allowing engines to run until residual fuel is exhausted.

(ii) Pressure-relief valve openings shall be in continuous contact with the vapor space (top) of the cylinder.

(iii) Fuel containers shall be secured to prevent their being jarred loose, slipping or rotating.

(iv) Containers shall be located to prevent damage to the container. If located within a compartment, that compartment shall be vented. Containers near the engine or exhaust system shall be shielded against direct heat radiation.

(v) Container installation shall provide the container with at least the vehicle's road clearance under maximum spring deflection, which shall be to the bottom of the container or to the lowest fitting on the container or housing, whichever is lower.

(vi) Valves and connections shall be protected from contact damage. Permanent protection shall be provided for fittings on removable containers.

(vii) Defective containers shall be removed from service.

(3) *Fueling operations.* (i) To the extent applicable, fueling operations for liquefied gas fuels shall also comply with paragraph (a) of this section.

(ii) Using matches or flames to check for leaks is prohibited.

(iii) Containers shall be examined before recharging and again before reuse for the following:

(A) Dents, scrapes and gouges of pressure vessels;

(B) Damage to valves and liquid level gauges;

(C) Debris in relief valves;

(D) Leakage at valves or connections; and

(E) Deterioration or loss of flexible seals in filling or servicing connections.

(4) *Fuel storage.* (i) Stored fuel containers shall be located to minimize exposure to excessive temperatures and physical damage.

(ii) Containers shall not be stored near exits, stairways or areas normally used or intended for egress.

(iii) Outlet valves of containers in storage or transport shall be closed. Relief valves shall connect with vapor spaces.

(5) *Vehicle storage and servicing.* (i) Liquefied gas fueled vehicles may be stored or serviced inside garages or shops only if there are no fuel system leaks.

(ii) Liquefied gas fueled vehicles under repair shall have container shut-off valves closed unless engine operation is necessary for repairs.

(iii) Liquefied gas fueled vehicles shall not be parked near open flames, sources of ignition or unventilated open pits.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40202, July 25, 1997; 65 FR 40943, June 30, 2000]

§ 1917.157 Battery charging and charging.

(a) Only designated persons shall change or charge batteries.

(b) Battery charging and changing shall be performed only in areas designated by the employer.

(c) Smoking and other ignition sources are prohibited in charging areas.

(d) Filler caps shall be in place when batteries are being moved.

(e) Parking brakes shall be applied before batteries are charged or changed.

(f) When a jumper battery is connected to a battery in a vehicle, the ground lead shall connect to ground away from the vehicle's battery. Ignition, lights and accessories on the vehicle shall be turned off before connections are made.

(g) Batteries shall be free of corrosion buildup and cap vent holes shall be open.

(h) Adequate ventilation shall be provided during charging.

(i) Facilities for flushing the eyes, body and work area with water shall be provided wherever electrolyte is handled, except that this requirement does

not apply when employees are only checking battery electrolyte levels or adding water.

(j) Carboy tilters or siphons shall be used to handle electrolyte in large containers.

(k) Battery handling equipment which could contact battery terminals or cell connectors shall be insulated or otherwise protected.

(l) Metallic objects shall not be placed on uncovered batteries.

(m) When batteries are being charged, the vent caps shall be in place.

(n) Chargers shall be turned off when leads are being connected or disconnected.

(o) Installed batteries shall be secured to avoid physical or electrical contact with compartment walls or components.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40202, July 25, 1997]

§ 1917.158 Prohibited operations.

(a) Spray painting and abrasive blasting operations shall not be conducted in the vicinity of cargo handling operations.

(b) Welding and burning operations shall not be conducted in the vicinity of cargo handling operations unless such hot work is part of the cargo operation.

APPENDIX I TO PART 1917—SPECIAL CARGO GEAR AND CONTAINER SPREADER TEST REQUIREMENTS (MANDATORY) [SEE § 1917.50(C)(5)]

Type gear	Test requirement	Tested by	Proof test	
A. All Special Cargo Handling Gear Purchased or Manufactured on or After January 21, 1998				
1. Safe Working Load—greater than 5 short tons (10,000 lbs./4.5 metric tons).	Prior to initial use	OSHA accredited agency only.	Up to 20 short tons.	125% SWL
	Prior to reuse after structural damage repair		From 20 to 50 short tons	5 short tons in excess of SWL
	Every four years after initial proof load test	OSHA accredited agency or designated person (40)(1) 125% SWL	Over 50 short tons	110% SWL
2. Safe Working Load—5 short tons or less.	Prior to initial use Prior to reuse after structural damage repair	OSHA accredited agency or designated person	125% SWL	
3. Intermodal container spreaders not part of vessel's cargo handling gear.	Prior to initial use			
	Prior to reuse after structural damage repair Every four years after initial proof load test.	OSHA accredited agency only OSHA accredited agency or designated person.		125% SWL
B. All Special Cargo Handling Gear in Use Prior to January 21, 1998				
1. Any Safe Working Load.	Every four years starting on January 21, 1998.	OSHA accredited agency or designated person.	Up to 20 short tons.	
	Prior to initial use or prior to reuse after structural damage repair	OSHA accredited agency	From 20 to 50 short tons Over 50 short tons	5 short tons in excess of SWL 110% SWL

2. Intermodal container spreaders not part of ship's gear.	Every four years starting on January 21, 1998	OSHA accredited agency or designated person	
	Prior to initial use or prior to reuse after structural damage repair	OSHA accredited agency	125% SWL

[65 FR 40943, June 30, 2000]

PART 1918—SAFETY AND HEALTH REGULATIONS FOR LONGSHORING

Subpart A—General Provisions

Sec.

- 1918.1 Scope and application.
 1918.2 Definitions.
 1918.3 Incorporation by reference
 1918.4 OMB control numbers under the Paperwork Reduction Act.

Subpart B—Gear Certification

- 1918.11 Gear certification (See also §§1918.2, definition of "Vessel's cargo handling gear" and 1918.51).

Subpart C—Gangways and Other Means of Access

- 1918.21 General requirements.
 1918.22 Gangways.
 1918.23 Jacob's ladders.
 1918.24 Fixed and portable ladders.
 1918.25 Bridge plates and ramps (See also §1918.86).
 1918.26 Access to barges and river towboats.

Subpart D—Working Surfaces

- 1918.31 Hatch coverings.
 1918.32 Stowed cargo and temporary landing surfaces.
 1918.33 Deck loads.
 1918.34 Other decks.
 1918.35 Open hatches.
 1918.36 Weather deck rails.
 1918.37 Barges.

Subpart E—Opening and Closing Hatches

- 1918.41 Coaming clearances.
 1918.42 Hatch beam and pontoon bridles.
 1918.43 Handling hatch beams and covers.

Subpart F—Vessel's Cargo Handling Gear

- 1918.51 General requirements (See also §1918.11 and appendix III of this part).
 1918.52 Specific requirements.
 1918.53 Cargo winches.
 1918.54 Rigging gear.
 1918.55 Cranes (See also §1918.11).

Subpart G—Cargo Handling Gear and Equipment Other Than Ship's Gear

- 1918.61 General (See also appendix IV of this part).
 1918.62 Miscellaneous auxiliary gear.
 1918.63 Chutes, gravity conveyors and rollers.
 1918.64 Powered conveyors.
 1918.65 Mechanically-powered vehicles used aboard vessels.
 1918.66 Cranes and derricks other than vessel's gear.
 1918.67 Notifying ship's officers before using certain equipment.
 1918.68 Grounding.
 1918.69 Tools.
 1918.70–1918.80 [Reserved]

Subpart H—Handling Cargo

- 1918.81 Slinging.
 1918.82 Building drafts.
 1918.83 Stowed cargo; tiering and breaking down.
 1918.84 Bulling cargo.
 1918.85 Containerized cargo operations.
 1918.86 Roll-on roll-off (Ro-Ro) operations (see also §1918.2, Ro-Ro operations, and §1918.25).
 1918.87 Ship's cargo elevators.
 1918.88 Log operations.
 1918.89 Handling hazardous cargo (See also §1918.2 and §1918.99).

Subpart I—General Working Conditions

- 1918.90 Hazard communication.
 1918.91 Housekeeping.
 1918.92 Illumination.
 1918.93 Hazardous atmospheres and substances (See also §1918.2).
 1918.94 Ventilation and atmospheric conditions (See also §1918.2, definitions of Hazardous cargo, materials, substance or atmosphere and Ro-Ro operations).
 1918.95 Sanitation.
 1918.96 Maintenance and repair work in the vicinity of longshoring operations.
 1918.97 First aid and lifesaving facilities. (See appendix V of this part).
 1918.98 Qualifications of machinery operators and supervisory training.
 1918.99 Retention of DOT markings, placards and labels.
 1918.100 Emergency action plans.