

SECTION A: MARINE INSPECTION ADMINISTRATION

**CHAPTER 1: AUTHORITY AND PROVISIONS FOR
MERCHANT VESSEL INSPECTIONS**

A. AUTHORITY FOR THE INSPECTION OF VESSELS

1. General. The Coast Guard administers navigation and vessel inspection laws and rules, and regulations governing marine safety. The Coast Guard is tasked with inspecting the vessels to which those laws apply. It is essential that current copies of Titles 33 and 46 of the Code of Federal Regulations (CFR) are maintained at each Marine Safety unit. Application of statutes to a particular vessel is based upon many factors, including: trade, route, length, tonnage, and/or number of passengers. To avoid misunderstandings, the application of statutes should be determined with a particular vessel, type of vessel, or operation in mind. In discussions concerning statutory applications, hypothetical cases should be avoided. Most statutes establish general requirements for inspection and authorize the Coast Guard to prescribe specific standards by regulation. However, certain requirements for vessel standards and procedures are contained within the statute itself.

2. Authority 46 U.S.C. 3305, 3307, and 3714 provide the legal basis for the inspection of vessels that are subject to inspection under 46 U.S.C. 3301. 43 U.S.C. 1356 provides the legal basis for Coast Guard regulations pertaining to vessels engaged in Outer Continental Shelf Activities. 46 U.S.C. 3306 and 3703 direct the Secretary of the Department of Transportation (SECDOT) to prescribe regulations to carry out these requirements.

3. Delegation of Authority from SECDOT SECDOT has delegated authority to the Commandant, U.S. Coast Guard to administer certain navigation and inspection laws.

The Commandant accomplishes this by prescribing regulations published in Titles 33, 46 and 49 of the Code of Federal Regulations (CFR). These regulations incorporate international laws to which the United States is signatory (see paragraph D), as well as various classification society and industry technical standards. Specific authorities and the process by which regulations are adopted, changed and deleted are described in 33 CFR 1.05 and in the Marine Safety Manual (MSM) Volume 1, Chapter 2.

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- 4. Responsibility of the Officer-In-Charge, Marine Inspection (OCMI)** Under 33 CFR 1.01-20, the OCMI has the final authority and responsibility for carrying out vessel inspection functions within the OCMI's zone. Signature authority for certain inspection documents may be redelegated pursuant to 46 CFR 2.01-30. (See Marine Safety Manual, Volume I, Chapter 2, paragraph 2.1.2.a.(2)) The flow of functional authority from the OCMI to subordinates, and from the Commandant to the OCMI, is described in 46 CFR 1.01-10 and 1.01-15. Descriptions of the duties and responsibilities of the OCMI and other Marine Inspection (MI) Program personnel are presented in MSM Volume I.
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- 5. Handling Violations of Other Laws** It is essential that all inspection personnel have a working knowledge of the laws under which they are operating. Certain laws concerning the safety of vessels are administered by other agencies, e.g., the U.S. Customs Service (Jones Act), the Federal Communications Commission (FCC), the Occupational Safety and Health Administration (OSHA), the Minerals Management Service (MMS) and the Department of Labor. When a vessel is known to be in violation of laws administered by agencies other than the Coast Guard, the agency having jurisdiction should be notified of the circumstances. In some instances, a Memorandum of Understanding (MOU) has been signed between the Coast Guard and the agency that prescribes specific procedures to be followed to ensure that inspection and enforcement activities are complimentary to each agency (see MSM Volume X for a complete listing of all MOUs). Violations of laws administered by the Coast Guard not pertaining to marine safety should be reported to the cognizant Coast Guard District Commander.
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B. REGULATIONS AND STATUTES

**1. Code of
Federal
Regulations
(CFR)**

The OCMI should maintain current copies of all rules and regulations affecting vessel inspections for use by inspection personnel. Current year copies of the CFR should be available for inspectors to use in performing their duties. Regulations, and the subsequent changes to them, are not effective until published in the Federal Register. However, once published, the regulations and regulation changes are codified annually in the CFR. The following is a partial list of the CFR subchapters applicable to marine safety and vessel inspection:

Title 46 CFR		
Subchapter	Part	Subject
A	1-9	Procedures Applicable to the Public
B	10-16	Merchant Marine Officers and Seamen
C	24-29	Uninspected Vessel
D	30-40	Tank Vessels
E	42-46	Load Lines
F	50-64	Marine Engineering
G	66-69	Documentation and Measurement of Vessels
H	70-89	Passenger Vessels
I	90-106	Cargo and Miscellaneous Vessels
I-A	107-109	Mobile Offshore Drilling Units
J	110-113	Electrical Engineering
K	114-122	Small Passenger Vessels Carrying More Than 150 Passengers or with Overnight Accommodations for More Than 49 Passengers
L	125-139	Offshore Supply Vessels
N	146-149	Dangerous Cargoes
O	150-155	Certain Bulk Dangerous Cargoes
Q	159-165	Equipment, Construction and Material: Specifications and Approval
R	166-169	Nautical Schools
S	170-174	Subdivision and Stability
T	175-187	Small Passenger Vessels
U	188-196	Oceanographic Research Vessels
V	197-198	Marine Occupational Safety and Health Standards
W	199	Lifesaving Appliances and Arrangements

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Title 33 CFR		
Subchapter	Part	Subject
A	19	Waivers of Navigation and Vessel Inspection Laws and Regulations
D	80	Navigation Rules
H	105	North Atlantic Passenger Routes
N	140-147	Outer Continental Shelf (OCS) Activities
O	151-159	Pollution
P	160	Ports and Waterways Safety

Title 49 CFR		
Subchapter	Part	Subject
C	171-179	Hazardous Materials Regulations

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2. **U.S. Code (USC), Titles 33, 46 and 50** The OCMI should also maintain current copies of Titles 33, 46 and 50 U.S. Code. Current year copies of the CFR should be available for inspectors to use in performing their duties. The following is a list of significant sections of Titles 33, 46 and 50 U.S.C. applicable to marine safety and vessel inspection:

Title 46 U.S.C.	
Site	Subject
46 U.S.C. 5101 – 5116	Load line requirements for foreign vessels.
46 U.S.C. 2101(12), 3306(a)(5) and 49 U.S.C. 1801 -1812	Safety requirements for carriage of dangerous articles and substances aboard foreign vessels.
46 U.S.C. 2101(12), (21) and (35), 3504 and 3505	Safety requirements for foreign vessels carrying passengers from any U.S. port to any other place or country.
46 U.S.C. 2101(12), (21), (22) and (35), and Chapter 35	Inspection and certification requirements for all foreign passenger vessels which embark passengers at and carry them from a U.S. port. These statutes are also relevant for vessels having valid SOLAS 74/78 Certificates or Canadian Certificates of Inspection, that must be examined to verify compliance with the flag administration's safety verification requirements.
46 U.S.C. 2101(12) and (39), 3301(10) and Chapter 37	Safety requirements that apply, with certain stipulations, to all foreign vessels regardless of tonnage, size, or manner of propulsion, whether or not carrying freight or passengers for hire, that enter U.S. navigable waters while carrying liquid bulk cargoes that are: <ul style="list-style-type: none"> a. Flammable or combustible; b. Oil of any type or in any form, including petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes, except dredged spoil; c. Designated as a hazardous substance under Section 311(b) of the Federal Water Pollution Control Act (FWPCA) (33 U.S.C. 1321); or d. Designated as hazardous materials under Section 104 of the Hazardous Materials Transportation Act (HMTA) (49 U.S.C. 1803).
46 U.S.C. 2101(21) and 3304	Permission for U.S. vessels transporting cargo to carry a limited number of individuals without being considered a "passenger vessel" for most inspection purposes, and extension of this privilege to cargo vessels of those nations that accord reciprocal treatment.
46 U.S.C. 2101(33) and 3301(7)	Directs that safety requirements of 46 U.S.C. Chapter 33 are applicable to seagoing motor vessels of 300 or more gross tons.
46 U.S.C. 2101(35) and 3301(8)	Safety requirements for foreign small passenger vessels carrying more than six passengers from a U.S. port.

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Title 33 U.S.C.	
Site	Subject
33 U.S.C. 1221-1232	Statutes for advance notice of arrival and navigation safety regulations.

Title 50 U.S.C.	
Site	Subject
50 U.S.C. 191	Requirements for security of vessels, harbors and waterfront facilities, and provision for control of the movement of foreign vessels in U.S. waters by the local OCMI/COTP (See Volume VI of this manual).



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C. BOUNDARY LINE AND TERRITORIAL SEA.

1. **Boundary Lines**

- a. 46 U.S.C. 3301(6) and (7) require inspection of seagoing barges and motor vessels whose definitions in 46 U.S.C. 2101(32) and (33) rely on the use of the Boundary Line;
- b. 46 U.S.C. 5102(b)(6) exempts the load line statutes from applying to a U.S. vessel engaged in coastwise voyages that do not cross the Boundary Line, except a voyage on the Great Lakes;
- c. 46 U.S.C. 8304 limits the application of the Officers Competency Certificate Convention, Geneva, 1936, to the *high seas*, defined as being "seaward of the Boundary Line";
- d. The vessel Bridge-to-Bridge Radiotelephone Act (33 U.S.C. 1201 et. seq.) requires the carriage of radiotelephones on board certain vessels inside the Boundary Line on the navigable waters of the U.S. (i.e., inside the 3-mile limit);
- e. 33 U.S.C. 152 limits the length of towing hawsers when operating inside the Boundary Line; and
- f. 46 U.S.C. 3302(d) exempts certain vessels that operate inside the Boundary Line within the waters of southeastern Alaska and the State of Washington from inspection requirements. In addition to the above, the "Commercial Fishing Industry Vessel Safety Act of 1988" (46 U.S.C. 4502(b)) requires the carriage of safety equipment by certain uninspected commercial fishing industry vessels when operating beyond the Boundary Line.

NOTE: The U.S. Boundary Lines are specified in 46 CFR Part 7 and are used to determine the applicability of the six statutes listed under 46 CFR 7.1, summarized in this section.

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**2. U.S.
Territorial Sea**

- a. On 28 December 1988, the President of the United States, by virtue of his foreign relations authority and consistent with international law, proclaimed a 12 nautical mile territorial sea. The proclamation did not extend the contiguous zone. The U.S. territorial sea extension applies to waters adjacent to the coasts of the Commonwealth of Puerto Rico, Guam, American Samoa, U.S. Virgin Islands, Commonwealth of the Northern Mariana Islands and any other territory or possession over which the U.S. exercises sovereignty.
 - b. Effect Upon Coast Guard Enforcement Activities. The proclamation extended the territorial sea only for international purposes and does not alter Coast Guard law enforcement activities. Existing Federal and State laws are not changed. The statutory definitions and applications of jurisdictional terms such as "territorial seas," "territorial waters," "navigable waters," and other similar terms remain unchanged unless legislation is enacted to change a specific law. For the purposes of enforcing U.S. domestic laws, the U.S. territorial sea remains 3 nautical miles, the outer limit of the U.S. contiguous zone remains 12 nautical miles, and the meaning of U.S. customs waters is unchanged. Accordingly, congressional action is necessary to extend the geographic application of a State or Federal law beyond 3 nautical miles.
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D. INTERNATIONAL CONVENTIONS AND TREATIES RELATED TO MARINE INSPECTION TO WHICH THE U.S. IS PARTY

The International Maritime Organization (IMO) is a specialized agency of the United Nations concerned solely with maritime affairs. There are approximately 160 member nations in IMO, including the United States. IMO is responsible for international conventions, treaties, and resolutions to improve maritime safety. The organization consists of an Assembly, a Council, a Secretariat, and five specialized committees. The committee that proposes standards for steering and other technical matters is the Maritime Safety Committee, which meets twice a year. Countries that are party to international conventions and treaties, including the following, are listed in MSM Volume 1, Chapter 11.

- See MSM II, Section E for information on specific International Conventions, Treaties, Standards, and Regulations.

1. International Convention For The Safety Of Life At Sea (SOLAS), 1974

- a. This Convention became binding upon the U.S. on 25 May 1980. It contains standards and procedures affecting the inspection of certain passenger vessels and cargo vessels making international voyages. The 1978 Protocol to SOLAS 74, adopted by the International Conference on Tanker Safety and Pollution Prevention, modified the original Convention and became effective on 1 May 1981; together they are known as SOLAS 74/78.
- b. Convention Requirements. For the most part, the inspection requirements of the Convention, with the exception of radio equipment, have been or are in the process of being incorporated into Title 46, CFR. In determining the intent of a particular regulation, a thorough knowledge of the Convention's terms is essential. Additional guidance on this Convention is contained in chapters E2, D1 and D7 of this volume.

2. International Load Line Convention (ICLL), 1966

- a. General. This Convention, which has been incorporated into Title 46 CFR, Subchapter E, contains standards for determining loading limits for vessels, the structure of vessels, protection of openings, guard rails, freeing ports, and means of access to crew's quarters. The requirements of this Convention are administered by the American Bureau of Shipping (ABS) for the Coast Guard; other assigning authorities have not been approved by the Commandant except for uninspected fish processing vessels.

The responsibilities of the OCMI and inspection personnel are described in volume IV of this manual.

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Vessel Load Line
Amendments of
1986

- b. Vessel Load Line Amendments of 1986.
- (1) A double standard has existed since 1968 when the ICLL changed to a length criterion of 79 feet while the Coastwise Act remained based on a tonnage criterion of 150 gross tons. On 21 October 1986, the Omnibus Reconciliation Act of 1986 (Public Law 99-509) was enacted which included provisions to revise and consolidate laws related to load lines. The new law brings all vessels under the requirements of the International Voyage Load Line Act of 1973, except in those cases where doing so would subject a vessel to additional requirements not justified for reasons of safety. It is for this reason that the public is being given ample opportunity to address implementation of the new law as it may impact on the provisions of existing regulations and policies. Although certain existing provisions may appear to be eliminated by the new law, many could be continued under the special exemptions provision under 46 U.S.C. 5108.
 - (2) The new law applies to ships 79 feet or more in length for both international and domestic voyages, a change from the 150 gross ton criterion for domestic voyages. Vessels of 79 feet or more in length on international voyages have been required to have a load line since 1968. "New" vessels on domestic voyages which are under 150 gross tons but 79 feet or more in length may be assigned a load line, but are not required to have one until the implementing regulations are promulgated. "Existing" vessels on domestic voyages continue to be subject to load line requirements based on tonnage.
 - (3) Until the regulations are amended to conform to the new law, the existing regulations will continue in effect. Policies based on these regulations or the old law that have been previously published either in this manual or elsewhere will also remain in effect. Additionally, existing limited domestic voyage approvals allowed by local policy, whether or not they are currently in the regulations, may continue in effect. When the new regulations are promulgated and in effect, all vessels on domestic voyages which were built after 1 January 1986 will have to comply with the load line requirements except as specifically exempted. Any existing policies that are discontinued by the rulemaking could, under the new law, also result in certain requirements being applied retroactively to existing vessels. Questions regarding load line application and enforcement should be directed to Commandant (G-MOC-2).

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3. **International Convention for the Prevention of Pollution from Ships, 1973 as modified by the 1978 Protocol (MARPOL 73/78)**

- a. General. The principal object of MARPOL is the protection of the marine environment from pollution arising from the deliberate, negligent, or accidental release of oil and other harmful substances. Most of the technical measures, including the requirements for vessels and reception facilities, are included in five annexes to this Convention, as follows:
 - (1) Annex I - Oil;
 - (2) Annex II - Noxious Liquid Substances Carried in Bulk (e.g., chemicals);
 - (3) Annex III - Harmful Substances Carried in Packages;
 - (4) Annex IV - Sewage; and
 - (5) Annex V - Garbage.

Annexes I and II

- b. Annexes I and II. The Act to Prevent Pollution From Ships (33 U.S.C. 1901 et seq.) is the implementing U.S. legislation for MARPOL and Annexes I and II. Annex I entered into force on 2 October 1983 and Annex II entered into force on 6 April 1987.

Annexes III through V

- c. Annexes III through V. These are optional, i.e., a government may, at the time of acceding to or ratifying the Convention, declare that it does not accept any or all of these Annexes. The U.S. has accepted Annex V and it came into force on 31 December 1988, and Annex IV is not yet in force.

4. **International Regulations for Preventing Collisions at Sea, 1972 (COLREGS)**

These are published in COMDTINST M16672.2, Navigation Rules, International - Inland. They prescribe the basic rules that control the behavior of vessels at sea to prevent collisions. Questions concerning the navigation rules should be directed to Commandant (G-MW).

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5. **International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969** This Convention affirms the right of a coastal nation to take all necessary measures on the high seas to prevent or mitigate the danger to its coastline or related interest from pollution by oil, or the threat thereof, following a maritime casualty. Such actions may be taken only after due consultation with appropriate interests, including the flag state(s) of the ship(s) involved, the owners of the ship(s) or cargoes in question, and, when circumstances permit, independent experts appointed for this purpose. No interventions can be conducted by marine safety personnel without the specific approval of the Commandant. A coastal nation that exceeds these measures is liable to pay compensation for any damages caused by its unilateral actions. The Convention contains provisions for the settlement of disputes through negotiation, conciliation, and arbitration. For further guidance consult COMDINST M16451.5 (series).
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6. **International Convention for Safe Containers, 1972** This Convention seeks to maintain a high level of safety of human life in the transport and handling of cargo containers, while facilitating their international use in intermodal transportation.
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7. **Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972** This Convention, commonly known as the "London Dumping Convention," promotes the effective control of all sources of marine pollution. It tasks nations that are party to it to take all practical steps to prevent pollution from dumping wastes and other matter liable to create hazards to human health, to harm living resources and marine life, or to interfere with other legitimate uses of the sea. The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA, 33 U.S.C. 1401 et seq.) was amended on 22 March 1974 to reflect the provisions of this Convention. It prohibits or controls the dumping of wastes and other matter, in whatever form or condition, as follows:
- a. The dumping of wastes or other matter listed in Annex I of the Convention is prohibited;
 - b. The dumping of wastes or other matter listed in Annex II requires special prior permission; and
 - c. In times of emergency, usually prohibited dumping may occur to secure the safety of lives, vessels, aircraft, or structures at sea.
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8. **Officers' Competency Certificates Convention, 1936** Every nation that is party to this Convention must establish minimum requirements of professional capacity for the master, chief engineer, and navigating and engineering officers in charge of watches aboard merchant vessels of that country, and must issue certificates of competency to qualified officers. This Convention has been implemented by statute and regulation in 46 U.S.C. 8304 and 46 CFR 15.701, respectively, for vessels of 200 gross tons or more.
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9. **Certification of Able Seaman Convention, 1946** This Convention requires persons serving as able seamen aboard merchant vessels of nations party to this Convention to be qualified to perform any duty in the deck department, and to possess certificates of qualification granted in accordance with the provisions of the Convention.
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10. **STCW 95** The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW 95) was adopted on 07 July 1995 and entered into force internationally on 01 February 1997. The major highlights of the 1995 amendments include the following: Creation of the STCW Code, changes in tonnage limitations, certification and endorsements, rest periods, English proficiency, basic safety training, vessel familiarization, and company responsibility

NOTE: See MSM II D2.D.1.(d) and E for guidance on exercising control under STCW Article X, and Regulation 1(4) and NVIC 3-98 for guidance on the '95 amendments.

11. **ILO 147** International Labor Organization (ILO) Convention No. 147, The Convention concerning Minimum Standards in Merchant Ships (ILO 147) was adopted at the 62nd session of the International Labor Conference on 13 October 1976, under the auspices of ILO. It entered into force internationally on 28 November 1981; upon the United States' deposit of its instrument of ratification, it entered into force on 15 June 1989. ILO 147 serves as an "umbrella" convention for 15 other ILO conventions concerning a variety of maritime related health, welfare and workplace safety issues. ILO 147 concerns three basic areas: safety standards including standards of competency, hours of work and manning; appropriate social security matters; and, shipboard conditions of employment and shipboard living arrangements. A guidebook, Inspection of Labour Conditions on Board Ship: Guidelines for Procedure (ISBN 92-2-107096-4), may be obtained from ILO Publications, The International Labour Office, CH-1211, Geneva 22, Switzerland.

NOTE: See MSM II D2.D.1.(e) for guidance on exercising control under ILO 147 Article 4 and COMDTINST 16711.12.

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E. PURPOSE OF MARINE SAFETY MANUAL, VOLUME II

1. **Responsibility of the Marine Inspector** It is neither necessary nor possible to memorize the multitude of laws and regulations that the Coast Guard must enforce. It is, however, incumbent upon, and the responsibility of, the marine inspector to have a working knowledge of both U.S. and international laws and regulations so that he/she can recognize a deficiency when one occurs, or can quickly locate the statutory cite relating to a particular requirement.
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2. **Content** The following chapters contain information and policy intended to promote consistent and uniform interpretation and application of U.S. and international laws and regulations as they relate to merchant vessel inspections. This information generally does not restate requirements that are specifically and clearly covered in the law, Federal regulations or international conventions. Neither are the regulations and the guidance contained in this volume intended to cover all contingencies that may be encountered during vessel inspections. There is no substitute for experience and common sense to ensure that good marine practice is being followed. In addition, any information in this volume may be supplemented, altered, or waived in specific cases by the Commandant, district commander, or OCMI. To that end, it is imperative that the OCMI maintain a current and complete library containing the applicable laws and regulations.
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3. **Other Guidance** This volume must be used in conjunction with other applicable instructions, notices, and publications such as Commandant Instructions, Law Bulletins, and Navigation and Vessel Inspection Circulars (NVIC's). At the end of this chapter is a list of recommended reference material to further supplement information upon which the inspector may draw.
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4. **Index** The index at the end of this volume is a detailed cross reference between various subjects and applicable sections of this manual, NVIC's, and other instructions that provide guidance for the marine inspector.
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F. VESSEL INSPECTION POLICY

1. Inspections Vessel inspection policy is developed with the intention of protecting individuals, their private property, and the marine environment from the consequences of incidents involving materially unsafe vessels. Inspections of vessels are generally made while they are not engaged in navigation; however, at times it is more conducive to vessel owners and operators to schedule an in-water inspection, such as an inspection for certification or midperiod inspection, during a leg of a vessel's voyage. OCMI's should take advantage of underway inspections as they allow the inspector to witness the operation of a vessel's machinery and other equipment, as well as observing the conduct of the licensed crew. The inspection of a vessel is intended to determine its reasonable, probable compliance with published minimum safety standards over a projected period of time. The issuance of a Certificate of Inspection (COI) attests to that reasonable probability.

2. Coast Guard Concerns The Coast Guard's objective is to administer vessel inspection laws and regulations so as to promote safe, well-equipped vessels that are suitable for their intended service. It is not the Coast Guard's intent to place unnecessary economic and operational burdens upon the marine industry. In determining inspection requirements and procedures, inspection personnel must recognize and give due consideration to the following factors:

- a. The burden for proposing acceptable repairs rests upon the vessel's owner, not upon the repair facility or the inspector;
 - b. Delays to vessels, which can be costly, need to be balanced against the risks imposed by continued operation of the vessel, with safety of life, property, and the environment always the predominant factor over economics;
 - c. Certain types of construction, equipment, and/or repairs are more economically advantageous to the vessel operator and can provide the same measure of safety;
 - d. Some repairs can be safely delayed and can be more economically accomplished at a different place and time;
 - e. The overall safety of a vessel and its operating conditions, such as route, hours of operations, and type of operation, should be considered in determining inspection requirements;
 - f. Vessels are sometimes subject to operational requirements of organizations and agencies other than the Coast Guard; and
 - g. A balance must be maintained between the requirements of safety and practical operation. Arbitrary decisions or actions that contribute little to the vessel's safety and tend to discourage the construction or operation of vessels must be avoided.
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- 3. Appeals** Decisions made by the OCMI, the American Bureau of Shipping when acting on behalf of the Coast Guard, and the Marine Safety Center may be appealed by the affected party, as described in 46 CFR 1.03. Efforts should always be made first at the local level with the responsible office to resolve any disagreements. If agreement cannot be reached, then a written appeal is the next step, and should follow the appropriate route as indicated.
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G. APPLICABLE TANK VESSEL REQUIREMENTS

When combustible and flammable cargoes are carried in bulk, those portions of the vessel used for the carriage of these cargoes must also meet the requirements of Subchapter D (tank vessels). The following portions of Subchapter D apply to all vessels, if Grade D and above products are carried:

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1. **46 CFR 32.45
Electrical
Installations** Refer to 46 CFR 32.45: Electrical Installations.

 2. **46 CFR 32.50
Pumps,
Piping, and
Hose for
Cargo
Handling** Refer to 46 CFR 32.50: Pumps, Piping, and Hose for Cargo Handling.

 3. **46 CFR 32.55
Ventilation
and Venting** Refer to 46 CFR 32.55: Ventilation and Venting.

 4. **46 CFR 32.60
Hull
Requirements
for Tank
Vessels on or
After July 1,
1951** Of special significance are cargo piping and pump room requirements. Cargo piping must comply with 46 CFR 32.50-15(a)(1), and (3)(b) and (c). Cargo piping may not pass through machinery spaces. Combining this with the requirements of 46 CFR 32.60-20(a) will necessitate a separate space for the cargo pump. The equipment in this space must comply with 46 CFR 32.45 and 111.105-31. A hazardous area drawing in accordance with 46 CFR 111.20-1(k) will be required.

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H. REQUIRED PUBLICATIONS

Chapter 2 of the Directives, Publications and Reports Index (DPRI)(COMDTNOTE 5600) lists the effective publications required for marine safety units, as well as a list of effective periodicals.

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I. RECOMMENDED REFERENCES

In addition to the publications listed in the DPRI, OCMI's should obtain copies of pertinent international conventions and standards, industry standards and technical publications deemed necessary for reference and the proper training of personnel. Sufficient numbers and varieties of these publications should be obtained to keep inspection personnel abreast of developments in ship operation, construction, repair, etc. The following list of publications is considered to be good reference and training material, and may be modified to suit the individual needs of a unit. In light of the Coast Guard's increasing acceptance of industry developed standards, special emphasis should be placed on obtaining the specific standards listed either in the regulations or below.

1. A Guide to the Non-Destructive Testing of Non-Butt Welds in Commercial Ships, Parts I and II, Ship Structure Committee (SSC).
2. A Guide to Sound Ship Structures, D'Archangelo.
3. American National Standards Institute (ANSI) Steel Pipe Flanges and Flanged Fittings, ANSI B.16.5, American Society for Testing and Materials (ASTM).
4. ANSI Standard for Steel Valves, ANSI B.16.34, ASTM.
5. ANSI Standards for Power Piping, ANSI B.31.1, ASTM.
6. Approved Welding Electrodes, Wire-Flux and Wire Gas Combinations, American Bureau of Shipping (ABS).
7. ASME Boiler and Pressure Vessel Code, The American Society of Mechanical Engineers (ASME).
8. ASTM Standards:
 - F-1121-88, International Shore Connections for Marine Applications
 - F-1122-88, Quick Disconnect Couplings
 - F-1196-88, Sliding Watertight Door Assemblies
 - F-1197-88, Sliding Watertight Door Control Systems
 - F-XXX1, Spill Valves for Use in Marine Tank Liquid Overpressure Protection Applications
 - F-XXX2, Tank Vent Pressure-Vacuum Relief Valves
 - F-XXX3, Tank Vent Flame Arrestors
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9. Boilerworker First and Chief, Bureau of Naval Personnel (NAVPERS) 10537, U.S. Navy.
10. Carbon Dioxide Extinguishing Systems, NFPA-12, National Fire Protection Association (NFPA).

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11. Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code), IMO Resolution A.414(XI).
12. Care of Fire Hose, NFPA-198, NFPA.
13. Code of Safety for Dynamically Supported Craft, IMO.
14. Code of Safety for Diving Systems, IMO.
15. Code of Safety for Special Purpose Ships, IMO Resolution A.534(13).
16. Considerations for the Prevention of Furnace Explosions and Superheater Damage in Merchant Ship Boilers During Light-Offs, T&R R-23, the Society of Naval Architects and Marine Engineers (SNAME).
17. Control of Gas Hazards on Vessels to be Repaired, NFPA-306, NFPA.
18. Dangerous Properties of Industrial Materials, Sax.
19. Defects and Failures in Pressure Vessels and Piping, Helmut Thielsch. Reinhold Publishing Corp., New York.
20. Dry Chemical Extinguishing Systems, NFPA-17, NFPA.
21. Engineering Materials Handbook, Mantell. McGraw-Hill Book Co., New York.
22. Fiberglass Boat Design and Construction, Scott and DeGraff.
23. Fiberglass Boats, DuPlessis and DeGraff.
24. Fire Hose Coupling Screw Threads, NFPA-194, NFPA.
25. Fire Protection of Vessels During Construction, Repair and Lay-Up, NFPA-312, NFPA.
26. Flammable Liquids Code, NFPA-30, NFPA.
27. Flash Point Index of Trade Name Liquids, NFPA-325A, NFPA.
28. Foam Extinguishing Systems, NFPA-11, NFPA.
29. General Information for Grain Loading, International Cargo Gear Bureau, Inc.
30. Guide for Construction of Shipboard Elevators, ABS.
31. Guide for Container Equipment Inspection, Institute of International Container Lessors, Ltd.
32. Guide for Inert Gas Installations on Vessels Carrying Oil in Bulk, ABS.
33. Guide for Repair, Welding, Cladding and Straightening of Tail Shafts, ABS.

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34. Guide for Centralized Control and Automation of Ship's Steam Propulsion Plant, T&R R3-23, SNAME.
35. Guide for Shipboard Centralized Control and Automation, ABS.
36. Guide for Steel Hull Welding, American Welding Society (AWS).
37. Guide for Underwater Inspection in Lieu of Drydocking Survey, ABS.
38. Guidelines for the Design and Construction of Offshore Supply Vessels.
39. Halon 1301, National Fire Prevention Association, NFPA-12A, NFPA (1987).
40. Handbook of Ship Calculations, Construction and Operation, Hughes.
41. Handbook of Test Methods and Practices, Naval Ship Systems Command (NAVSHIPS) 918828, U.S. Navy.
42. Handbook of Wooden Boat Construction, Chapelle.
43. Handbook on Sanitation of Vessel Construction, PHS No. 393, U.S. Public Health Service (USPHS).
44. Handbook on Sanitation of Vessels in Operation, PHS No. 68, USPHS.
45. Inert Gas Systems, IMO Publication, 1983 Edition, Reprinted 1987.
46. Inspection Manual, NFPA.
47. International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code). The IBC Code is mandatory under both Chapter VII of SOLAS and Annex II of MARPOL 73/78 for chemical tankers constructed on or after 1 July 1986.
48. International Gas Carrier (IGC) Code. The IGC Code is mandatory under Chapter VII of SOLAS for gas carriers constructed after 1 July 1986.
49. Bulk Chemical (BCH) Code. The BCH Code is mandatory under Annex II of MARPOL 73/78 for chemical tankers constructed before 1 July 1986.
50. International Convention for Safe Containers, IMO.
51. International Safety Guide for Oil Tankers and Terminals (ISGOTT), 3rd Edition, International Chamber of Shipping.
52. Introduction to Steel Shipbuilding, Baker.
53. Lloyd's Register of Shipping Rules and Regulations for the Classification of Yachts and Small Craft (Lloyd's Rules).
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57. Marine Engineering, Harrington. SNAME, 1971.
58. Marine Engineers Handbook, Lamberton and Marks.
59. Modern Ships, John M. LaDage. Cornell Maritime Press.
60. National Electrical Code, NFPA-70, NFPA.
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62. Nondestructive Testing Handbook, Vol. I and II, R. C. McMaster, ed. The Society for Nondestructive Testing; Roland Press.
63. Personnel Qualification and Certification in Nondestructive Testing, Recommended Practice No. SNT-TC-1A, American Society for Nondestructive Testing.
64. Pleasure and Commercial Motor Craft, NFPA-302, NFPA.
65. Portable Fire Extinguishers, NFPA-10, NFPA.
66. Principles of Magnetic Particle Testing, Betz.
67. Principles of Naval Architecture, SNAME.
68. Principles of Penetrants, Betz.
69. Provisional Rules for the Approval of Filler Metals for Welding Higher Strength Steels, ABS.
70. Radiographs of Welds, International Institute of Welding (IIW).
71. Recommended Practice for Electrical Installations on Shipboard, Standard No. 45, Institute of Electrical and Electronic Engineers (IEEE).
72. Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk, Annex II of MARPOL 73/78.
73. Requirements for Radiographic Inspection of Hull Welds, ABS.
74. Requirements for the Certification of the Construction and Survey of Cargo Gear on Merchant Vessels, ABS.
75. Requirements for the Certification of the Construction and Survey of Self-Unloading Cargo Gear on Great Lakes Vessels, ABS.
76. Rules and Regulations for the Classification of Yachts and Small Craft, Lloyd's Register of Shipping.

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77. Rules for Building and Classing Aluminum Vessels, ABS.
78. Rules for Building and Classing Bulk Carriers for Service on the Great Lakes, ABS.
79. Rules for Building and Classing Mobile Offshore Drilling Units, ABS.
80. Rules for Building and Classing Reinforced Plastic Vessels, ABS.
81. Rules for Building and Classing Steel Barges for Offshore Service, ABS.
82. Rules for Building and Classing Steel Vessels, ABS.
83. Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, ABS.
84. Rules for Building and Classing Steel Vessels Under 61 Meters, ABS.
85. Rules for Building Wooden Hulls, ABS.
86. Rules for Nondestructive Inspection of Hull Welds, ABS.
87. Safety and Health In Dock Work - Code of Practice, The International Labor Organization (ILO).
88. Safety Code for Elevators, Dumbwaiters and Escalators, ANSI.
89. Safety Manual for Marine Oil-Fired Watertube Boilers, The National Safety Council.
90. Safety of Life At Sea (SOLAS 48, 60 and 74), IMO.
91. Ship Design and Construction, SNAME, 1980.
92. Ship to Ship Transfer Guide (Petroleum), International Chamber of Shipping/Oil Companies International Marine Forum.
93. Ship to Ship Transfer Guide (Liquefied Gases), International Chamber of Shipping/Oil Companies International Marine Forum.
94. SOLAS 74/83, Consolidated Text.
95. SOLAS 74, 1983 Amendments, Vol. III (IGC Code).
96. SOLAS 74, 1988 and 1989 Amendments.
97. Specifications by the American Society for Testing and Materials (All Parts), ASTM.
98. Standard Marking System for Valves, Fittings, Flanges and Unions, MSS-SP 25, The Manufacturers Standardization Society (MSS).
99. Standards for the Installation of Sprinkler Systems, NFPA-13, NFPA.

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101. Standards and Recommended Practices for Small Craft, American Boat and Yacht Council, Inc., (ABYC).
102. Standards of the American Welding Society, (AWS).
103. Standards of the Compressed Gas Association, (CGA).
104. Standards of the Marine Department, Underwriters Laboratories, Inc.
105. Standards of the Tubular Exchanger Manufacturers Association, (TEMA).
106. Static Electricity, NFPA-77, NFPA.
107. Steel Construction Manual, The American Institute of Steel Construction.
108. Storage and Handling of Liquefied Petroleum Gases, NFPA-58, NFPA.
109. Tanker Handbook for Deck Officers, C. Baptist.
110. Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment, (Annual) American Conference of Governmental Industrial Hygienists.
111. United States Code Annotated, Title 46.
112. Welding Handbook, Sections 1-5 (latest editions), AWS.
113. Wire Rope and Strand, Federal Specification RR-W410C.
114. X-Ray Standards for Production and Repair Welds, NAVSHIPS 250-692-2, U.S. Navy.

NOTE: Various maintenance manuals published by the manufacturers of boilers, turbines, aluminum components, etc., are also useful resources.

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J. MARITIME ADMINISTRATION (MARAD)

The Merchant Marine Act of 1936 (46 App. U.S.C. 1101 et seq.), as amended by the Merchant Marine Act of 1970, states that it is the national policy to foster the development and encourage the maintenance of a merchant marine. The agency charged with implementing this policy is MARAD. In September 1981, MARAD became an agency of the Department of Transportation (DOT). Liaison between MARAD and the Coast Guard is intended to promote attainment of the mutual goal of merchant vessel safety.

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K. HAZARDOUS MATERIAL DETERMINATIONS AND AUTHORITY

A liquid hazardous material is defined in 46 U.S.C. 2101. Regulation of combustible and flammable liquids falls under either or both of the following statutes:

- See MSM II, Section F for more greater detail on issues involving the carriage of hazardous materials.

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1. **HazMat Transportation Act (HMTA) of 1974** Hazardous Materials Transportation Act (HMTA) of 1974 (49 U.S.C. 1801-1812). For "packaged" material, the HMTA defines a "hazardous material" as "a substance or material that has been determined by the Secretary of the Department of Transportation (SECDOT) to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated" (see 49 CFR 171.8). This is a very broad definition, in that it includes many commodities that may not be allowed for shipment in bulk.

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2. **46 USC 2101** For the purpose of "bulk" transportation, Title 46 U.S.C. defines a "hazardous material" as any liquid material or substance that is:
- a. Flammable or combustible;
 - b. Designated a hazardous substance under Section 311(b) of the Federal Water Pollution Control Act (FWPCA), as amended (33 U.S.C. 1321); or
 - c. Designated a hazardous material under Section 104 of the HMTA (49 U.S.C. 1803).
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