

DEPARTMENT OF TRANSPORTATION**Research and Special Programs Administration****49 CFR Parts 107, 171, and 176**

[Docket No. HM-204; Notice No. 90-6]

RIN 2137-AA10

Transportation of Explosives by Vessel and Miscellaneous Amendments**AGENCY:** Research and Special Programs Administration (RSPA), DOT.**ACTION:** Notice of proposed rulemaking (NPRM).

SUMMARY: RSPA and the United States Coast Guard (USCG) are proposing to amend existing requirements of the Hazardous Materials Regulations (HMR) pertaining to the handling, stowage, and transport of explosives by vessel. This notice proposes to revise provisions currently found in 46 CFR part 146 applicable to the carriage of military explosives by vessel and to consolidate them with the provisions for transporting commercial explosives by vessel that are currently found in 49 CFR part 176.

The purpose of this notice is to simplify, clarify, and remove duplicative requirements for the transport of explosives by vessel. RSPA has also proposed minor editorial changes intended to harmonize the modal requirements of part 176 applicable to the transport of hazardous materials by vessel with the proposed changes to hazard class terminology and units of measurement set forth in Docket HM-181, Notice 87-4 (52 FR 42772: November 6, 1987). Docket HM-181, Notice 87-4, indicated these changes would be forthcoming.

The intended effect of this notice is to enhance transportation safety, make the regulations pertaining to the transport of explosives by vessel easier to use and enforce, and facilitate the international transportation of hazardous materials by vessel.

DATES: Comments must be received on or before July 16, 1990.

ADDRESSES: Written comments should be submitted to the Dockets Unit, Research and Special Programs Administration, U.S. Department of Transportation, Washington, DC 20590-0001. Comments should identify the docket and notice number and should be submitted, if possible, in five copies. If confirmation of receipt of comments is desired, include a self-addressed stamped postcard showing the docket number (i.e., Docket HM-204). The

Dockets Unit is located in room 8221 of the Nassif Building, 400 Seventh Street SW., Washington, DC 20590-0001. The docket may be reviewed between the hours of 8:30 a.m. and 5 p.m., Monday through Friday, except holidays.

FOR FURTHER INFORMATION CONTACT: Mr. Frank K. Thompson, Office of Marine Safety, Security, and Environmental Protection (G-MTH-1), U.S. Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593-0001, telephone (202) 267-1577; or, Mr. Carl V. Strombom, Office of Hazardous Materials Transportation, Research and Special Programs Administration, U.S. Department of Transportation, 400 7th Street SW., Washington, DC 20590-0001, telephone (202) 366-4488.

SUPPLEMENTARY INFORMATION:*Preamble Outline*

- I. General discussion.
- II. Review by sections.
- III. Related rulemakings.
- IV. Administrative notices.

I. General Discussion

In a final rule issued under Docket No. HM-112 on January 24, 1971 (41 FR 15972), requirements for the transport of hazardous materials by vessel were reissued under the Hazardous Materials Transportation Act (HMTA) and relocated to 49 CFR part 176. Not included in the reissued regulations were provisions applying to hazardous materials transported in bulk by vessel, found in 46 CFR chapter I, subchapters D, I, O, and N, and requirements applying to military explosives, found in 46 CFR part 146. This notice proposes to revise the provisions of 46 CFR part 146 and incorporate them into the Hazardous Materials Regulations (HMR) at 49 CFR part 176. Requirements concerning the carriage of hazardous materials by bulk are not under authority of the HMTA and would remain in 46 CFR.

Since the Second World War, vessels transporting explosives have been required to comply with different requirements depending on the end use of the explosives. If a vessel is transporting military explosives, the applicable regulations are in 46 CFR part 146; on the other hand, if a vessel is transporting explosives other than military explosives, the applicable regulations are in 49 CFR part 176. One major difference between the requirements in 46 CFR and those in 49 CFR is the complexity of the segregation rules. Historically, greater emphasis has been placed on the segregation of military explosives due to the destructive threat posed by these

materials. However, since non-military explosives are potentially as hazardous as military explosives, the USCG and RSPA believe their safety requirements should be consistent with those for military explosives. Consequently, the regulations regarding handling, fire, electrical safety, stowage, segregation, and transport should be the same for both types of explosives.

Further complicating the international transport of explosives is the adoption by most major nations of the International Maritime Dangerous Goods (IMDG) Code which incorporates the United Nations (U.N.) classification system for explosives and other hazardous materials. The HMR do not authorize compliance with the IMDG for the transport of Class A and B explosives; thus, a system of dual compliance is in effect for transporters of explosives in international commerce. Currently, international shippers of explosives by vessel must ensure that cargoes of Class A or B explosives are prepared, identified, and stowed to meet the HMR, or 46 CFR part 146, as applicable, to be in compliance with U.S. regulations while in waters under U.S. jurisdiction; and must concurrently prepare, identify, and stow the same explosive cargo in accordance with the IMDG Code to meet the regulations of the originating or destination country. This rulemaking proposes to eliminate the need for such dual compliance by revising 49 CFR requirements governing the transport of explosives by vessel to be consistent with provisions in the IMDG Code pertaining to the transport of substances and articles of United Nations (U.N.) Class 1, i.e., explosives.

At its 37th session in May 1985, the International Maritime Organization's (IMO) Subcommittee on the Carriage of Dangerous Goods initiated a complete revision of the provisions of the IMDG Code which deal with the transport of Class 1 materials. After receiving numerous recommendations from many maritime nations, including the U.S., the revisions were finalized in 1989. The rewritten Class 1 provisions will enter the IMDG Code and become effective 1 January 1991. The revised introduction and schedules for Class 1 substances and articles are expected to be adopted as regulations by most nations which are trading partners of the United States.

In this notice, it is proposed to revise and relocate provisions currently contained in the Military Explosives Regulations of 46 CFR part 146, and to revise existing 49 CFR requirements for explosives found in 49 CFR part 176, subpart G. RSPA and the USCG do not

believe that the burden of compliance on shippers or carriers would be significantly increased by the proposed regulations because they now must comply with very similar regulations in foreign ports, in addition to complying with the HMR in U.S. ports.

A second aspect of this notice, is to propose the adoption of the IMDG Code system of hazardous materials segregation. Before July 1, 1988, the requirements for the segregation of incompatible hazardous materials in 49 CFR 176.83 were identical to those in the IMDG Code. With the 24th Amendment of the IMDG Code, however, the IMO has adopted significant changes to its segregation system. The most notable change allows the mixed stowage of materials such as flammable liquids with materials such as corrosives which were formerly considered incompatible. Also, new tables have been introduced to illustrate the separations required between freight containers or transport vehicles containing hazardous materials. A number of shipping line operators have requested and received a DOT exemption (DOT-E 9785) authorizing them to comply with the IMDG segregation system in place of the requirements of 49 CFR 176.83. In Docket HM-166W (54 FR 38790, September 20, 1989), RSPA further authorized all shipments in international commerce, except shipments of explosives and radioactive materials, to be stowed and segregated in accordance with the IMDG Code. In this notice, the present requirements for hazardous materials segregation in 49 CFR 176.83 would be revised for consistency with the recent changes of the IMDG Code.

This notice also proposes various revisions to the requirements for handling explosives on vessels in port. Based on the 1983 IMO publication *Recommendations on the Safe Transport, Handling and Storage of Dangerous Goods in Port Areas*, the changes proposed in 49 CFR 176.176 through 176.190, are similar to the requirements of 46 CFR part 146 which now apply only to vessels on which military explosives are handled and stowed. In the future, they would apply to all vessels on which any type of explosive is loaded, handled, or unloaded in a U.S. port. These proposed rules would not apply to the handling and storage of explosives at a waterfront facility, which is governed by 33 CFR part 126.

In addition to revising provisions for handling explosives on vessels in port areas, proposals are included to provide standard requirements for the transportation by vessel of explosives in

freight containers and transport vehicles (i.e., trucks and semitrailers). At present, all commercial Class A explosives and nearly all military explosives may be transported by vessel in freight containers and transport vehicles only after specific approval for the operation has been granted by the Commandant, USCG. For several years, the USCG has authorized and controlled the movement of explosives in freight containers through its approval program. During this period, the USCG has gained information on various safety benefits resulting from the use of the freight container for the transportation of explosives; including increased cargo security and reduced handling of explosives. The USCG also has participated in developing the international standards for freight container design and construction, and in implementing an inspection and certification program to ensure the safe cargo-carrying capability of freight containers. This proposal would eliminate the requirements for special USCG approval of freight containers carrying Class A explosives (Division 1.1 and 1.2 materials). The approval provisions would be incorporated into the proposed regulations of 49 CFR part 176.

Other changes proposed include various revisions for the carriage of Class 1 (explosive) materials on passenger vessels and the removal of requirements for the use of asbestos. The proposals for passenger vessels are based on revisions contained in the forthcoming Amendment 25 of the IMDG Code. Amendment 25 will specify that Division 1.4S (Class C explosives) materials, other Class 1 materials in compatibility groups B, C, D, E, and G, and Class 1 (explosive) materials used for lifesaving purposes may be carried on board passenger vessels if certain restrictive quantity and stowage provisions are met. The proposed revisions for asbestos would remove a requirement for the use of asbestos board in the construction of 'tween deck magazines. Present HMR requirements predate the recognition of the health hazard associated with asbestos.

Besides the changes necessary to consolidate military and commercial explosives requirements in the HMR and align the explosives regulations of 49 CFR part 176 with the IMO and IMDG Code requirements regarding segregation, vessels in port facilities, passenger vessels and asbestos, various editorial changes are proposed to further align 49 CFR part 176 with the proposals in Docket HM-181, Notice 87-4, as published on November 6, 1987 (52 FR

42772). Docket HM-181, Notice 87-4, proposed to revise the HMR to incorporate features found in the United Nations Committee of Experts' Recommendations on the Transport of Dangerous Goods (U.N. Recommendations) and the Technical Instructions for the Safe Transportation of Dangerous Goods by Air of the International Civil Aviation Organization (ICAO Technical Instructions).

Proposals in Docket HM-181, Notice 87-4, are intended to: (1) Simplify the HMR, (2) reduce the volume of the regulations, (3) promote flexibility and technological advances in packaging, (4) promote safety through better packaging, (5) reduce the need for exemptions, and (6) facilitate international commerce. The proposals of Docket HM-181, Notice 87-4, would align the HMR with the U.N. Recommendations and ICAO Technical Instructions in the areas of classification, packaging, and hazard communication in the transport of hazardous materials.

In Docket HM-181, Notice 87-4, proposals were not included for part 176 due to time constraints. It has been RSPA's intent to develop complementary rulemakings for each modal section of 49 CFR to harmonize current requirements with those proposals set forth in Docket HM-181, Notice 87-4. In this notice, part 176 would be revised for consistency with Docket HM-181 proposals in regard to: (1) Use of international numeric hazard class nomenclature (e.g., "Class 4" rather than "flammable solid") and, (2) use of both metric and U.S. standard measurements. Most of the changes that align 49 CFR part 176 with Docket HM-181, Notice 87-4, proposals are editorial in nature and have been identified in the Review by Sections part of this preamble. The classifications proposed in Docket HM-181, 87-4, and used throughout this NPRM are listed as follows:

Class division	Name of class or division
1.1	Explosives (mass explosion hazard)
1.2	Explosives (projectory/fragment hazard)
1.3	Explosives (predominately fire hazard)
1.4	Explosives (no significant blast hazard)
1.5	Very insensitive explosives, blasting agents
1.6	Extremely insensitive explosive articles or devices
2.1	Flammable gas
2.2	Non-flammable gas

Class division	Name of class or division
2.3	Poisonous gas
3	Flammable and combustible liquids
4.1	Flammable solids
4.2	Spontaneously combustible materials
4.3	Dangerous when wet materials
5.1	Oxidizers
5.2	Organic peroxides
6.1	Poisonous materials
6.1	Irritating materials
6.2	Etiological or infectious substances
7	Radioactive materials
8	Corrosive materials
9	Miscellaneous (hazardous) materials

The proposed classifications would be used throughout 49 CFR part 176 in place of current DOT classifications. As an aid to the reader, current DOT classifications would remain in parentheses immediately following the proposed classifications. To further align 49 CFR part 176 with Docket HM-181, Notice 87-4, and other international requirements, current measurements in 49 CFR part 176 would be converted to their metric system equivalents. U.S. measurements would remain in parentheses immediately following the metric measurements. Editorial revisions for classifications and metric system measurements necessary to align 49 CFR part 176 with Docket HM-181, Notice 87-4, and international regulations are proposed for subparts H, I, J, L, N, and O. These subparts have been reprinted in their entirety to aid the reader. Subpart M of 49 CFR part 176 has not been included in this notice, as changes to the requirements for radioactive materials will be proposed in a future rulemaking action.

Concurrently with this proposed action, USCG and RSPA are proposing to revoke the military explosives regulations in 46 CFR part 146. A notice of proposed rulemaking concerning that action appears elsewhere in this issue of the Federal Register.

II. Review by Sections

The following review by sections addresses all of the proposed changes of this NPRM. Proposals are broken down into two categories: (1) Proposals to amend the existing HMR; and (2) proposals in §§ 171.7 and 176.84 to modify our earlier proposal, initiated under Docket HM-181, Notice 87-4 (52 FR 42772; November 6, 1987), to amend the HMR. For these two sections, reference is made to the Federal Register volume, page number, and date the previous proposal was published in the Federal Register.

Part 107: Hazardous Materials Program Procedures

Section 107.101. In § 107.101, the text would be revised to remove the words "or part 146" from the paragraph as all requirements for vessel transportation of hazardous materials will be contained in 49 CFR and 46 CFR part 64.

Section 107.103. In § 107.103, the text of paragraph (a) would be revised to remove the words "or part 146" as all requirements for vessel transportation of hazardous materials will be contained in 49 CFR and 46 CFR part 64.

Section 107.113. In § 107.113, the text of paragraph (a) would be revised to remove the words "or part 146" as all requirements for vessel transportation will be contained in 49 CFR and 46 CFR part 64.

Section 107.201. In § 107.201, the text of paragraph (c) would be revised to remove the words "or part 146" as all requirements for the vessel transportation of hazardous materials would be contained only in 49 CFR and 46 CFR part 64.

Part 171: General Information, Regulations, and Definitions

Section 171.7. In Docket HM-181, Notice 87-4, in the proposed table of material incorporated by reference in § 171.7(c) (52 FR 42778; November 6, 1987), an entry would be added to include a reference to appendix B of Association of American Railroads Specification M-931-Highway Trailers, All Types, for TOFC Service, 1985 edition and the entry for the International Maritime Organization's IMDG Code would be revised to reflect the current edition of the Code.

Section 171.8. In § 171.8 the definitions of "Away from", "Separated by a complete hold or compartment from", "Separated from", and "Separated longitudinally by a complete hold or compartment from" would be removed. In addition, the definitions of "Captain of the Port (COTP)", "Passenger vessel", "Trailership" and the last sentence of the definition of "Competent authority" would be revised to aid in understanding the terms used in the proposed changes of this NPRM.

Part 176—Carriage by Vessel

The table of sections for part 176 would be revised to ensure all section number references correspond to the renumbered and new section numbers proposed in this NPRM.

Section 176.2. A new § 176.2 would be added to include definitions of terms that would be used extensively in part 176. Words and terms defined include "Cantline", "Cargo net", "Closed freight

container", "Commandant (G-MTH)", "Compartment", "CSC safety approval plate", "Deck structure", "Draft", "Dunnage", "Explosives anchorage", "Explosive article", "Explosives handling facility", "Explosive substance", "Handling", "Hold", "In containers or the like", "Incompatible materials", "Landing mat", "Machinery spaces of category A", "Magazine", "Master of the Vessel", "Open freight container", "Overstowed", "Pallet", "Palletized unit", "Pie plate", "Portable magazine", "Readily combustible material", "Responsible person", "Safe working load", "Skilled person", "Skipboard", "Splice", "Transport unit", and "Tray".

Section 176.3. In § 176.3, paragraph (b) would be revised to remove the reference to § 176.5(c) and to refer the reader to § 173.54, Forbidden Explosives (see Docket HM-181A, Notice 90-5 of the Related Rulemakings section of this preamble). Readers of the current regulations will notice that § 176.5(c) is a reserved section which contains no regulatory text. The revision of § 176.3 would remove the inappropriate reference to § 176.5(c).

Section 176.4. A new § 176.4 would be added to transfer the port security regulations of 46 CFR part 146.29-7 to the HMR.

Section 176.5. In § 176.5, paragraph (e) would be removed. This section refers to the military explosives requirements of 46 CFR part 146. The requirements of 46 CFR regarding military explosives shipments have been incorporated into this NPRM: therefore, the reference in § 176.5(e) would no longer be needed. In addition, paragraph (b)(6) would have minor editorial revisions to align the paragraph with the classifications proposed in Docket HM-181, Notice 87-4.

Section 176.9. In § 176.9, paragraph (a) would be revised to replace the current DOT classification Class A explosives with Divisions 1.1 and 1.2.

Section 176.11. In § 176.11, paragraphs (a), (c), and (f) would be revised to clarify the use of the IMDG code for transportation by vessel.

Section 176.30. In § 176.30, the reference to § 172.102 would be removed from paragraph (a)(3). Under the proposals of Docket HM-181, Notice 87-4, the § 172.102 Optional Table would be consolidated into the § 172.101 Hazardous Materials Table. Reference to § 172.102 would no longer be necessary. Also, paragraph (a)(5) would be revised to remove references to international classifications that are duplicative of proposals in Docket HM-181, Notice 87-4.

Section 176.54. Section 176.54 would be revised by changing the section heading to include power actuated tools. In addition, paragraph (b)(1) would be modified to refer to the Captain of the Port's (COTP) authority in 33 CFR 126.15(c), and paragraph (b)(2) would be revised to require notification of the nearest COTP before any repairs are made.

Section 176.57. Section 176.57 would have minor editorial revisions. Throughout the section the phrase "qualified person" would be replaced by "responsible person".

Section 176.58. Section 176.58 would be revised to include more detailed requirements for preparing a vessel for loading hazardous materials. The proposed regulations would require that all decks, gangways, hatches, and cargo ports over or through which hazardous materials must be passed or handled in loading or unloading must be free of all loose material before cargo handling operations begin. The proposed provisions would not allow any debris that might create a fire hazard or a hazardous condition for persons engaged in loading or unloading operations and would also prohibit the stowage of hatch beams and hatch covers in a location that would interfere with cargo handling.

Section 176.69. In § 176.69, paragraph (a) would be revised to change the reference from ORM material to Class 9 (miscellaneous hazardous materials). This minor editorial revision would be necessary to align this section with the classifications proposed in Docket HM-181, Notice 87-4. In addition, paragraph (d) and (e) would be added to outline additional general stowage requirements for hazardous materials.

Section 176.74. Section 176.74(c) would be revised to change the reference from ORM material to Class 9 (miscellaneous hazardous materials) materials. This minor editorial correction would be necessary to align this section with the classifications proposed in Docket HM-181, Notice 87-4.

Section 176.76. Section 176.76 would be revised to eliminate the requirements for USCG approval for freight containers containing Division 1.1 or 1.2 (Class A explosive) materials. The USCG approval provisions would be incorporated into the requirements of §§ 176.170, 176.172, and 176.194. In addition, the requirements of paragraph (a)(9) for loading solids on top of liquids would be removed as would the requirements of paragraph (c) limiting railroad vehicles to transport only on board a trainship, railroad car ferry, or a car float.

Section 176.78. Section 176.78 would be revised to provide for the use of certain specified forklift trucks for handling Class 1 (explosive) materials. Generally, Series EE or EX electric trucks as defined in Underwriters Laboratories (UL) Standard UL583 could be used in all situations. UL Series GS, LPS, D; or DS could be used only under conditions acceptable to the COTP. For safety reasons, forklifts used to handle small or unstable loads would be required to have backrests sufficient to prevent loads from falling towards the mast of the truck and onto the driver. Paragraph (1) would be revised to make the provisions for the storage of industrial truck fuel consistent with the recently-revised Ships Stores regulations in 46 CFR part 147. In addition, paragraph (e) and (1) would be revised to align the section with the classifications and metric system measures proposed in Docket HM-181, Notice 87-4.

Section 176.83. Section 176.83 would be revised to harmonize the U.S. stowage and segregation requirements and charts with the IMDG Code stowage and segregation requirements. The IMDG Code at present does not contain provisions for the stowage and segregation of explosive materials in Division 1.6. In proposed Table 176.83(a), the requirements for Division 1.4 would also apply to Division 1.6. Two new tables containing the segregation requirements for freight containers on board container ships and transport vehicles on trailerships (RO/RO vessels) would be added to this section. As proposed in this notice, the stowage provisions for transport vehicles would differ from those for freight containers. This is not consistent with the present regulations; however, in the IMDG Code, the stowage requirements for transport vehicles are more stringent because the IMO Carriage of Dangerous Goods Subcommittee believed that "the general circumstances of many RO/RO ships required separate consideration." In order to determine what these "general circumstances" are, and whether "separate considerations" are necessary, comments from shippers and carriers engaged in this trade are invited.

Section 176.84. In proposed § 176.84 of Docket HM-181, Notice 87-4 (52 FR 42989; November 6, 1987), paragraph (c) would be added to provide provisions for the stowage of Class 1 (explosive) materials. Specific provisions would be added to provide for the shipment of small quantities of Class 1 (explosive) materials in compatibility groups other than A, H, J, K, and L. This section

would also contain a chart that would list the notes found in column 10(c) of the § 172.101 Table and their meaning.

Section 176.90. In § 176.90, the word "explosive" would be amended to read "Class 1 (explosive) material".

Section 176.91. In § 176.91, the words "six gallons" would be amended to read "23 liters (six gallons)".

Section 176.92. In § 176.92, the words "compressed gas" would be amended to read "Class 2 (compressed gas) material".

Section 176.93. In § 176.93, paragraph (a) the words "flammable liquid and gas" would be revised to read "flammable liquid and Division 2.1 (flammable gas) materials". This editorial revision would align this section with the classifications proposed in Docket HM-181, Notice 87-4.

Section 176.96. Section 176.96 would have a minor editorial correction. The section would be revised to read "Barges used to transport hazardous materials must be constructed of steel" instead of the present wording, "Only barges constructed of steel may be used to transport hazardous materials."

Section 176.98. In § 176.98, the words "column (7)" would be changed to read "column (10)". This editorial correction would align this section with the new § 172.101 Hazardous Materials Table proposed in Docket HM-181, Notice 87-4.

Section 176.99. In § 176.99, the words "Class A Explosives" would be replaced with Division numbers 1.1 and 1.2 and the words "Blasting agents" would be replaced with Division 1.5. The remainder of this section would remain unchanged.

Section 176.100. In § 176.100, the words "Class A explosives" would be replaced with Division numbers 1.1 and 1.2. The remainder of this section would remain unchanged.

Section 176.102. Section 176.102 would be added to authorize the COTP to assign a USCG detail to supervise the loading and unloading of Class 1 (explosive) materials. This requirement has been a long-standing provision for military Class 1 (explosive) materials but, apart from the COTP's broad authority under 33 CFR part 126, it is a new requirement for nonmilitary Class 1 (explosive) materials.

Section 176.104. Section 176.104 would be added to consolidate the loading and unloading requirements for nonmilitary Class 1 (explosive) found in current § 176.105 with those for military Class 1 (explosive) materials. This consolidation will essentially mean no change in the requirements for nonmilitary Class 1 (explosive) materials, but many detailed

requirements for military Class 1 (explosive) would be eliminated. Current § 176.105 would be removed.

Section 176.108. A new 176.108 would be added to define the responsibilities of the responsible person in charge of the loading, unloading, stowage and handling operations for Class 1 (explosive) materials aboard a vessel.

Section 176.112. A new § 176.112 would be added to state the applicable stowage requirements for Division 1.4 (Class C explosive) materials, compatibility group S items. Because of the limited hazards associated with items in this category, their stowage would be allowed with all other Class 1 (explosive) materials except those in compatibility groups A or L.

Section 176.116. A new § 176.116 would be added to include many of the requirements for stowage conditions for Class 1 (explosive) materials that are found in the IMDG code. The requirements would require the stowage of Class 1 (explosive) materials in a cool, dry location and Class A steel bulkheads would be required between Class 1 (explosive) materials stowage and accommodation spaces. In addition, machinery space bulkheads would have to be insulated to a "Class A-60" standard.

Section 176.118. A new § 176.118 would be added to specify the requirements for electrical equipment and cables installed in compartments where Class 1 (explosive) materials are carried. This section would permit the use of energized electrical circuits in explosive storage locations if certain conditions are met.

Section 176.120. A new § 176.120 would be added to include lightning protection requirements for ships carrying Class 1 (explosive) materials. The requirements for the cleaning of decks, hatches, and gangways that are currently found in § 176.120 would be covered by revised § 176.58. The requirements of present § 176.120(b) concerning the closing of hatches would be relocated to proposed § 176.182(g).

Section 176.122. A new 176.122 would be added to list the requirements for explosive stowage under deck. Generally, explosive stowage under deck would be allowed as described in §§ 176.124 through 176.136 of this NPRM.

Section 176.124. A new § 176.124 would be added for "ordinary" stowage provisions. New "ordinary" stowage replaces present stowage provisions for nonmilitary Class 1 (explosive) materials not requiring magazine stowage and present "ammunition stowage" provisions for military Class 1 (explosive) materials.

Section 176.128. A new § 176.128 would be added to list the general stowage requirements for explosive substances. Generally, all explosive substances, with some limited exceptions for compatibility groups G, L, or S, would require magazine stowage. Depending on their characteristics, Class 1 (explosive) materials would be required to be stowed in one of three different types of magazines designated by the letters A, B, and C.

Section 176.130. Section 176.130 would be revised to reflect the design, construction, and location requirements for Magazine Stowage Type A as well as the requirements for the stowage of Class 1 (explosive) materials therein. The requirements for securing, blocking and bracing Class 1 (explosive) materials that are currently found in § 176.130 would be relocated to § 176.69, where they would apply to all hazardous materials. The stowage requirements for kegs of black powder in the present paragraph (c) of this section are not consistent with the IMDG Code and would be removed.

Section 176.132. A new § 176.132 would be added to reflect the design, construction, and location requirements for Magazine Stowage Type B on vessels. The section also addresses the requirements for explosive stowage within a Type B area.

Section 176.133. A new § 176.133 would be added to reflect the design, construction, and location requirements for Magazine Stowage Type C on vessels. The section would also address the requirements for explosive stowage within a Type C area.

Section 176.134. A new § 176.134 would be added to allow the use of closed transport vehicles as magazine stowage locations if they meet the requirements of the appropriate magazine stowage type. Additional requirements for the use of transport vehicles as explosive stowage locations would be found in § 176.168.

Section 176.136. A new § 176.136 would be added to address special stowage provisions for Class 1 (explosive) materials that present unique hazards. Special stowage requirements would be included for Class 1 (explosive) that have smoke hazards (compatibility groups G or H), are toxic (compatibility group K), or are materials that could have a chemical reaction when in contact with water (compatibility group L).

Section 176.137. A new § 176.137 would be added to contain the requirements of the design and fabrication of portable magazines meeting the requirements of the Bureau of Alcohol, Tobacco, and Firearms; and

would authorize COTP's, instead of Commandant (G-MTH-1), to approve oversize portable magazines.

Section 176.138. Section 176.138 would be revised to include the requirements for the on-deck stowage of Class 1 (explosive) materials. This section would require that Class 1 (explosive) materials stowed on deck must be at least 20 feet away from any fire, machinery exhaust, galley uptake, or other potential sources of ignition. The section would also require any on-deck explosive stowage to be clear of walkways, fire hydrants, means of access, or any facility necessary for the safe working operations of the vessel. The construction requirements for magazines that are currently found in § 176.138 would be moved to §§ 176.128 through 176.133.

Section 176.140. A new § 176.140 would be added to list the requirements for the segregation of Class 1 (explosive) materials in relation to bulk cargoes of hazardous materials. For specific instructions, the reader would be referred to the General Introduction to the IMDG Code.

Section 176.142. A new § 176.142 would be added to address the stowage requirements for certain hazardous materials of extreme flammability. These exceptions would be listed as paragraphs (b) and (c) of § 176.142.

Section 176.144. A new § 176.144 would be added to include provisions for mixed stowage in the same compartment, container, or transport vehicle of explosives in different compatibility groups. Table 176.144(a) would contain compatibility requirements for Class 1 (explosive) materials in compatibility group N which are not currently found in the IMDG Code. The requirements for the ventilation of magazines that are currently found in § 176.144 are not consistent with the IMDG Code and would be removed.

Section 176.145. A new § 176.145 would be added to include provisions for stowing Class 1 (explosive) materials on board small vessels having only a single hold when certain segregation provisions of § 176.83 cannot be met.

Section 176.146. A new § 176.146 would be added to include new provisions for the segregation of Class 1 (explosive) materials from nonhazardous materials. These requirements are new for non-military Class 1 (explosive) materials, but are not materially different from the present requirements for military Class 1 (explosive) materials found in the 46 CFR.

Section 176.147. The requirements for metal stowage lockers for fireworks that are currently found in § 176.147 are not consistent with the IMDG Code stowage requirements and would not be included in the revised explosives regulations of part 176.

Section 176.148. A new § 176.148 would be added to allow the use of electric lights as the only form of artificial lighting permitted when loading and unloading Class 1 (explosive) materials.

Section 176.150. Section 176.150 would be revised to include provisions for the use and deenergization of sources of electromagnetic radiation (radio transmitters, radars) during Class 1 (explosive) materials handling operations. In addition, the section would permit low-power VHF transmitters to be used and would add stowage requirements for items which are sensitive to electromagnetic radiation. The design and fabrication requirements for portable magazines that are currently found in § 176.150 would be relocated to proposed § 176.137.

Section 176.154. A new § 176.154 would be added that prohibits the loading or unloading of Class 1 (explosive) materials aboard a vessel while bunkering (fueling) is in progress. Bunkering would also not be permitted while the hatches of cargo spaces containing Class 1 (explosive) materials are open. The only allowable exceptions to these requirements would be for the stowage of Class 1 (explosive) materials in compatibility group S or with prior permission of the COTP.

Section 176.156. Section 176.156 would be revised to require that defective, leaking, or damaged packages of Class 1 (explosive) material must be handled in accordance with the recently adopted emergency response communication regulations (54 FR 27138 & 55 FR 870) (see Docket HM-126C in the related rulemakings section of this NPRM). The requirements for the stowage of Class 1 (explosive) materials with combustible liquids that are currently found in § 176.156 are redundant to the proposed segregation requirements of § 176.83 and would be removed.

Section 176.160. A new § 176.160 would be added to specify requirements for loading and unloading Class 1 (explosive) materials during rainstorms. This section would require that care must be taken to prevent packages containing Class 1 (explosive) materials from becoming wet.

Section 176.162. A new § 176.162 would be added to list security requirements and to restrict entry by unauthorized persons into spaces

containing Class 1 (explosive) materials. This requirement is new for nonmilitary Class 1 (explosive) materials although similar provisions presently exist for military Class 1 (explosive) materials in 46 CFR.

Section 176.164. A new § 176.164 would be added to include fire prevention provisions that are similar to those now in force for nonmilitary Class 1 (explosive) materials. Many existing detailed requirements for military Class 1 (explosive) materials would be eliminated.

Section 176.166. A new § 176.166 would be added to list the requirements for carrying Class 1 (explosive) materials on passenger vessels. The proposed requirements of this section would revise current regulations regarding explosive transport on passenger ships to be consistent with Amendment 25 of the IMDG Code. Generally, Division 1.4S (Class C explosive) materials, explosive articles for lifesaving purposes, and Class 1 (explosive) materials in compatibility groups C, D, E, and G if the net explosive weight does not exceed 10 kg (22 pounds) per vessel, would be authorized to be carried on a passenger vessel. In addition, materials in compatibility group B would be allowed if the net explosive weight did not exceed 5 kg (11 pounds).

Section 176.168. A new § 176.168 would be added to include new provisions governing the carriage of Class 1 (explosive) materials in motor vehicles aboard "roll-on/roll-off" (RO/RO) vessels. Transport vehicles carrying Class 1 (explosive) materials would be required to be structurally serviceable as defined in § 176.172(a)(2) and would need to be in compliance with the loading and unloading requirements of §§ 177.834 and 177.835. In addition, all explosive-laden transport vehicles would be required to be secured to the ship in such a manner to prevent the movement of the vehicle during the sea passage.

Section 176.170. A new § 176.170 would be added to include the requirements for the transport of Class 1 (explosive) materials in freight containers. The proposed provisions of §§ 176.170 and 176.172 would eliminate the present requirements of 49 CFR 176.76(a) and 46 CFR 146.29-11(c)(16) for Commandant, USCG approval of freight containers containing Division 1.1 or 1.2 (Class A explosive) materials. In addition, § 176.170 would also cover loading and stowage provisions for freight containers.

Section 176.172. A new § 176.172 would be added to specify the structural serviceability requirements for freight

containers and transport vehicles that are used for stowage of Class 1 (explosive) materials aboard ship. Proposed §§ 176.172, 176.170 and 176.192 would eliminate the approval requirements for freight containers that are currently found in 49 CFR 176.76(a) and 46 CFR 146.29-11(c)(16). The definition of the term "splice" as used in regard to freight containers is also included.

In addition, § 176.172(c) would contain a requirement for a written statement to accompany shipments of Class 1 (explosive) materials in freight containers or vehicles aboard vessels certifying that the freight containers or motor vehicles meet the structural serviceability requirements of § 176.172(a). To help determine what burden might result to shippers from a certification statement requirement, RSPA encourages readers to comment on this aspect of the NPRM.

Section 176.174. A new § 176.174 would be added to include the requirements for the transport of Class 1 (explosive) materials in shipborne barges. Generally, all types of Class 1 (explosive) materials would be allowed to be transported in shipborne barges except that Class 1 (explosive) materials in compatibility group G or H would be required to be stowed in steel portable magazines or freight containers, and Class 1 (explosive) materials in compatibility groups K or L would be required to be stowed in steel portable magazines.

Section 176.176. A new § 176.176 would be added that would require vessels to display signals while loading or unloading Class 1 (explosive) materials. These requirements are the same as those currently required for military Class 1 (explosive) materials, but are new requirements for the vessel transportation of nonmilitary Class 1 (explosive) materials.

Section 176.178. A new § 176.178 would be added that would specify the requirements for the proper use of mooring lines on vessels transporting Class 1 (explosive) materials. The requirements are similar to those currently contained in 46 CFR for military Class 1 (explosive) materials but would be new for nonmilitary Class 1 (explosive) materials.

Section 176.180. A new § 176.180 would be added that would require manning of an explosive-laden vessel while in port. This section would require a sufficient crew on board at all times necessary to maintain a proper watch and to operate the propulsion and firefighting equipment in case of an emergency.

Section 176.182. A new § 176.182 would be added that would include general operating requirements for safety in port. This section would include the provisions concerning lighting, smoking, and the use of drugs or alcohol that are currently found in §§ 176.167, 176.171, and 176.173. Requirements concerning operations during adverse weather conditions would also be included in § 176.182. Current §§ 176.167, 176.171, and 176.173 would be removed.

Section 176.184. A new § 176.184 would be added that would not allow the handling of Class 1 (explosive) materials in compatibility group L in any port area without the special permission of the COTP. Group L explosives would also be subject to any special handling precautions specified by the COTP.

Section 176.190. A new § 176.190 would be added that would direct a vessel to leave port as soon as possible after the loading of Class 1 (explosive) materials is completed.

Section 176.192. A new § 176.192 would be added that would provide provisions concerning freight container handling equipment. These provisions are the same as those issued under Commandant, USCG approval procedures for Division 1.1 and 1.2 (Class A explosive) materials shipped in freight containers except certain inspection and approval provisions of the approval which are covered by U.S. Occupational Safety and Health Administration (OSHA) regulations are omitted. The provisions of proposed §§ 176.192, 176.170 and 176.172 would eliminate the requirements in 49 CFR 176.76(a) and 46 CFR 146.29-11(c)(16) for Commandant, USCG approval of freight containers.

Section 176.194. A new 176.194 would be added to include the regulations that are currently found in § 176.177 and 46 CFR 146.29-53. This section would remain unchanged from current provisions with the exception of § 176.194(m). Section 176.194(m) would be revised to include current requirements for fire extinguishing equipment. In addition, paragraph (p) would refer the reader to the recently issued emergency response requirements of Docket HM-126C. Interested readers should refer to the Related Rulemakings section of this preamble for further information on Docket HM-126C. Current § 176.177 would be removed.

Subpart H—Sections 176.200 through 176.230. The subpart heading and the sections of subpart H would be revised to align the subpart with the classifications for hazardous materials proposed in Docket HM-181, Notice 87-

4. The text of subpart H would be modified to read Class 2 for all compressed gases, Division 2.1 for flammable gases, and Division 2.2 for nonflammable compressed gases. In addition, the text of § 176.225 for the stowage of chlorine would be revised to specifically prohibit the stowage of chlorine with only copper or brass leaf sheets and finely divided organic material. Current prohibitions against the stowage of chlorine with metallic sodium or potassium, turpentine, ammonia, coal gas, hydrogen, or acetylene would be covered by changes in the stowage and segregation tables proposed in this notice and in Docket HM-181, Notice 87-4.

Subpart I—Sections 176.305 through 176.340. The sections of subpart I and the subpart heading would be revised to align the subpart with the classifications for hazardous materials proposed in Docket HM-181, Notice 87-4. Editorial revisions would convert all measurements in subpart I to their metric system equivalents. Section 176.340(a)(2)(ix) would be revised to clarify that the non-DOT specification portable tanks authorized under this section must be periodically retested as presently required for DOT specification 57 portable tanks. In addition, recent Docket HM-166W [54 FR 38798] changes to § 176.340 (see the Related Rulemakings section of this preamble) have been reprinted in their entirety to aid in reader understanding of the section. Other changes would include the deletion of the reference to "bulk asbestos" in § 176.305(b)(2)(ii) and the addition of a provision in § 176.331 that would require flammable liquids with CORROSIVE or KEEP AWAY FROM FOOD labels to be stowed away from foodstuffs.

Subpart J part heading. The subpart heading for subpart J would be revised to make it consistent with the classifications for hazardous materials proposed in Docket HM-181, 87-4. Editorial revisions to the subpart heading would change the heading to read Class 4 for flammable solids, Class 5 for oxidizers and organic peroxides, and Division 1.5 for blasting agents.

Section 176.400. Section 176.400 would receive various editorial corrections to align it with the classifications proposed in Docket HM-181, Notice 87-4. Blasting agents would be referred to as Division 1.5 materials, oxidizers and organic peroxides would be referred to as Class 5 materials, and flammable solids would be referred to as Class 4 materials. In addition, new provisions would be added to require Class 4 and Division 5.2 (organic peroxide) materials to be

stowed away from heat or ignition sources.

Section 176.405. Section 176.405 would be revised editorially to include metric units of measurement. The term "broom clean" would be removed.

Section 176.410. In § 176.410, the section heading and paragraphs (d) and (e) would be revised to reflect the U.N. hazard classes and divisions for oxidizers (5.1) and for blasting agents (1.5). Editorial revisions would also change all measurements to their metric system equivalents. In addition, the names of materials listed in paragraph (a) would be changed to their proper shipping names as listed in the § 172.101 Table proposed in Docket HM-181, Notice 87-4.

Section 176.415. In § 176.415, the section title and paragraphs (a)(2) and (c)(5) would be revised to read Division 1.5 for blasting agents. The names of the materials to which this section applies would be revised throughout to be consistent with proper shipping names as listed in the § 172.101 Hazardous Materials Table of Docket HM-181, Notice 87-4. These changes will align this section with the proposals of Docket HM-181, Notice 87-4.

Section 176.419. Section 176.419 would be revised to align the section with the classifications proposed in Docket HM-181, Notice 87-4. Flammable solids would be referred to as Class 4 materials, and oxidizers and organic peroxides would be referred to as Class 5 materials. In addition, new provisions would be added that would require packages of Class 4 and Class 5 materials bearing CORROSIVE or KEEP AWAY FROM FOOD labels to be stowed away from foodstuffs.

Subpart L—Section 176.600 and 176.605. The two sections of subpart L and the subpart heading would be revised to align the subpart with the classifications proposed in Docket HM-181, 87-4. Editorial changes in the two sections of subpart L would modify the text to read Division 2.3 for Poison A and 6.1 for Poison B. In addition, § 176.600 paragraphs (c) and (d) would be added stating the requirement that materials labeled with the KEEP AWAY FROM FOOD label must be stowed away from foodstuffs and packages bearing the FLAMMABLE LIQUID or FLAMMABLE GAS label must be stowed away from sources of heat and ignition.

Subpart N—Sections 176.800 through 176.805. The heading and sections of subpart N would be revised to correspond with the classifications proposed in Docket HM-181, Notice 87-4. All references to corrosive materials

would be changed to read Class 8 (corrosive material) material. In addition, § 176.800 would be revised to align the section with the IMDG Code by specifying the stowage requirements for packages of Class 8 (corrosive material) material which also bear POISON or FLAMMABLE LIQUID labels.

Subpart O Heading. The heading of subpart O would be revised to read "Detailed Requirements for Cotton and Vegetable Fibers, Motor Vehicles, and Asbestos" to more adequately describe the requirements found in subpart O. Under the IMDG Code and the classifications proposed in Docket HM-181, Notice 87-4, cotton and other fibers are in either Division 4.1 or 4.2. In a future rulemaking, the rules applying to cotton and other fibers would be relocated to subpart J of part 176.

Section 176.900. In § 176.900, the section heading would be changed to show that this section contains packaging as well as stowage requirements for cotton and other vegetable fibers. Paragraphs (i) and (l) are not consistent with the segregation requirements of proposed § 176.83 and would be removed. In addition, measurements in paragraphs (a), (c)(4), and (j) would be converted to the metric system.

Section 176.901. In § 176.901, the words "1 inch" would be replaced with the metric system equivalent of 2.54 centimeters (cm).

Section 176.902. This section is not consistent with the stowage and segregation requirements for cotton in the § 172.101 Table and proposed § 176.83 and would be removed.

Section 176.903. In § 176.903, the words "2 inches" would be replaced with the metric equivalent of 5 cm.

Section 176.904. The requirements of this section are not consistent with the segregation requirements in proposed § 176.83 for cotton (Division 4.1 or 4.2) and sodium nitrate (Division 5.1). This section would be removed.

Section 176.905. Section 176.905 would be revised to align the section with the proposed classifications in Docket HM-181, Notice 87-4. Flammable gas would be referred to as Division 2.1 materials and all measurements would be converted to the metric system. In addition, current requirements of paragraph (l) regarding the stowage of hazardous materials in holds with motor vehicles are overly restrictive and are not consistent with the international segregation system found in the IMDG Code and would be removed.

Section 176.906. In § 176.906, the reference to § 173.1090 would be revised to refer to § 173.231.

III. Related Rulemakings

A. Docket HM-181A, Notice 90-5, Requirements for Explosives

As part of the effort to align the Hazardous Materials Regulations with international standards, RSPA proposed in Docket HM-181A, Notice 90-5 (55 FR 18438, May 2, 1990) to amend the HMR by incorporating various requirements for explosives found in the U.N. Recommendations. The explosives classifications in this NPRM are aligned with the U.N. classifications for Class 1 (explosive) materials as proposed in Docket HM-181A, Notice 90-5. Throughout this NPRM, Class 1 (explosive) materials have been referred to as shown by the following list:

Present DOT classification	Proposed U.N. classification
Class A Explosives.....	1.1 or 1.2
Class B Explosives.....	1.2 or 1.3
Class C Explosives.....	1.4
Blasting Agents.....	1.5
None.....	1.6

In addition to the classifications outlined above, Class 1 (explosive) materials would also have compatibility groups assigned. The class and division number for Class 1 (explosive) materials would be followed by a compatibility group letter. These compatibility group letters are used to regulate the storage and transportation of Class 1 (explosive) materials to prevent an increase in hazard that might result if certain types of Class 1 (explosive) materials are transported together. Compatibility group letters proposed in Docket HM-181A, Notice 90-5, and used in this NPRM are defined in the following table:

Description of substances or article to be classified	Compatibility group letter
Primary explosive substance.....	A
Article containing a primary explosive substance and not containing two or more effective protective features.	B
Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance.	C
Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective features.	D
Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing flammable or hypergolic liquid).	E

Description of substances or article to be classified	Compatibility group letter
Article containing a secondary detonating explosive substance with its means of initiation, with a propelling charge (other than one containing flammable or hypergolic liquid) or without a propelling charge.	F
Pyrotechnic substance or article containing a pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, lachrymatory or smoke-producing article or one containing white phosphorus, phosphide or flammable liquid or gel).	G
Article containing both an explosive substance and white phosphorus.	H
Article containing both an explosive substance and flammable liquid or gel.	J
Article containing both an explosive substance and a toxic chemical agent.	K
Explosive substance or article containing an explosive substance and presenting a special risk needing isolation of each type.	L
Substance or article so packed or designed that any hazardous effects arising from accidental functioning are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.	S

B. Docket HM-181B, Notice 90-4, Editorial Revisions to Modal Regulations

In order to align all modal sections of the HMR with the classifications and packaging requirements proposed in Docket HM-181, Notice 87-4, RSPA published a notice of proposed rulemaking on May 2, 1990 (55 FR 18546) that proposed various editorial revisions to the modal hazardous materials transportation requirements in part 174-Rail, part 175-Air, and part 177-Highway. Docket HM-181B, Notice 90-4, together with the editorial revisions contained in this NPRM for water transportation, should effectively align all modal parts of the HMR with the classification scheme proposed in Docket HM-181, Notice 87-4.

C. Docket HM-126C, Emergency Response Communication Standards

On June 27, 1989, RSPA issued a final rule (54 FR 27138) to impose new requirements for emergency response information on shipping papers, and placement of emergency response on vehicles and at transportation facilities. The final rule was followed by a corrections docket issued on January 10, 1990 (55 FR 870) in response to several petitions for reconsideration. The rulemaking is designed to improve the emergency response information requirements in the HMR in order to

enhance communication pertaining to the safe handling and identification of hazardous materials involved in transportation.

The proposals in this docket add no new requirements. However, several sections in part 176 have been revised to specifically refer to the new emergency response requirements of part 172, subpart G. The revisions proposed in this notice are intended to clarify the HMR and direct the reader to applicable sections whenever emergency response information is required.

D. HM-166W, Transportation of Hazardous Materials; Miscellaneous Amendments

On September 20, 1989, RSPA issued a final rule to make miscellaneous amendments to the HMR. Docket HM-166W (54 FR 38790) was promulgated to update the regulations, to eliminate the need for certain DOT approvals, and to reduce RSPA's backlog of rulemaking petitions.

Docket HM-166W revised the requirements of § 176.340 for combustible liquids in portable tanks and § 176.905(k) for motor vehicles on ships. To aid the reader, §§ 176.340 and 176.905(k) have been reprinted as they appeared in Docket HM-166W.

IV. Administrative Notices

A. Executive Order 12291

RSPA has determined that this rulemaking is (1) not "major" under Executive Order 12291; (2) is not "significant" under DOT's regulatory policies and procedures (44 FR 11034); (3) will not affect not-for-profit enterprises or small governmental jurisdictions; and (4) does not require an environmental statement under the National Environmental Policy Act (40 U.S.C. et seq.). The preliminary regulatory evaluation developed by RSPA suggests that the benefits of this rule exceed the costs. However, the analysis presented is more qualitative rather than quantitative. RSPA seeks comments on the benefits and costs associated with this rulemaking. In particular, we seek comments in the following areas:

1. Do the benefits of consolidating the duplicative explosive regulations in 46 CFR part 146 and 49 CFR part 176 exceed the costs? If so, by how much?

2. What are the costs and benefits associated with eliminating the need for dual compliance with U.S. domestic regulations and the IMDG Code by making the U.S. domestic explosives transportation regulations consistent with the international requirements?

3. Currently, all Class A explosives may be transported by freight containers on vessels only after specific approval for the operation has been granted by the Commandant, USCG. Coast Guard approvals are based on freight container inspection criteria found in the IMDG Code. This proposal would eliminate the requirements for special Commandant, USCG approval by adding the serviceability criteria of the IMDG Code directly to part 176. Will the benefits of this approach outweigh the costs?

4. What are the costs and benefits of removing outdated requirements such as those permitting the use of asbestos insulation?

5. RSPA believes that the vast majority of current commercial explosives shipments by vessel are done in accordance with the requirements of the IMDG Code. In order to align 49 CFR part 176 with the IMDG Code, RSPA has proposed to add current IMDG Code requirements regarding handling, fire, and electrical safety for Division 1.1 and 1.2 explosives directly to part 176. What are the costs and benefits of these new requirements for shippers of commercial explosives.

Comments provided on these questions will be incorporated into the final regulatory analysis.

B. Paperwork Reduction Act

The collection of information in this notice of proposed rulemaking has been submitted to the Office of Management and Budget for review in accordance with the Paperwork Reduction Act of 1980 (44 U.S.C. 3504(h)). Comments on the collection of information should be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, attention: Desk Officer for the Department of Transportation. All comments must reference the title of this notice, "Transportation of Explosives by Vessel and Miscellaneous Amendments".

The collection of information requirements of this notice are found in § 176.172(c), Structural serviceability of freight containers and vehicles carrying Class 1 (explosive) materials on ships. A statement would be required to accompany freight containers or vehicles transporting Class 1 (explosive) materials on vessels certifying that the freight container or vehicle met the structural serviceability requirements of § 176.172. The likely respondents for this collection of information are hazardous materials shippers who use freight containers or motor vehicles to transport Class 1 (explosive) materials aboard vessels.

C. Impact on Small Entities

RSPA is aware that amendments of such broad applicability may produce an economic impact on various industry segments, a substantial number of which may be small enterprises. The proposals in this notice may affect shippers, carriers, terminal operators, vessel operators, and other transportation organizations that ship hazardous materials by vessel and have small numbers of employees and gross revenues. Based on limited information concerning the size and nature of entities likely to be affected by this notice, I certify this regulation will not have a significant economic impact on a substantial number of small entities under criteria of the Regulatory Flexibility Act.

D. Executive Order 12612

This proposed action has been analyzed in accordance with the principles and criteria in Executive Order 12612 and, based on the information available to it at this time, RSPA does not believe that the proposed rule would have a substantial direct effect on the states, on the Federal-State relationship, or the distribution of power and responsibilities among levels of government. Thus, this regulation contains no policies that have Federalism implications, as defined in Executive Order 12612.

List of Subjects

49 CFR Part 107

Administrative practice and procedure, Hazardous materials transportation, Packaging and containers, Penalties, Reporting and recordkeeping requirements.

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste, Imports, Incorporation by reference, Reporting and recordkeeping requirements.

49 CFR Part 176

Hazardous materials transportation, Maritime carriers, Radioactive materials, Reporting and recordkeeping requirements.

In consideration of the foregoing, 49 CFR parts 107, 171, and 176 would be amended to read as follows (Note: The proposals in this notice are presented in a manner consistent with the format and recodification changes proposed in Docket HM-181, Notice 87-4 (52 FR 42772; November 6, 1987). Where a proposal is a modification to Notice 87-

4, the appropriate Federal Register page number of Volume 52 is provided):

PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES

1. The authority citation for part 107 would continue to read as follows:

Authority: 49 App. U.S.C. 1421(c); 49 App. U.S.C. 1802, 1806, 1808-1811; 49 CFR 1.45 and 1.53 and App. A of Part 1, Pub. L. 89-670 (49 U.S.C. 1653(d), 1655)

§ 107.101 [Amended]

2. Section 107.101 would be amended by removing the reference "chapter, 46 CFR part 64 or part 146" and inserting in its place the reference "chapter, or 46 CFR part 64".

§ 107.103 [Amended]

3. In § 107.103, paragraph (a) would be amended by removing the reference "46 CFR 64 or part 146" and inserting in its place the reference "or 46 CFR part 64".

§ 107.113 [Amended]

4. In § 107.113, paragraph (a) would be amended by removing the reference "46 CFR part 64 or part 146" and inserting in its place the reference "or 46 CFR part 64".

§ 107.201 [Amended]

5. In § 107.201, paragraph (c) would be amended by removing the words "and 46 CFR part 146".

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

6. The authority citation for part 171 would be revised to read as follows:

Authority: 49 App. U.S.C. 1802, 1803, 1804, 1805, 1808; 49 CFR part 1.

7. In § 171.7(c), as proposed at 52 FR 42778 on November 6, 1987, in the table a reference would be added under the entry for the Association of American Railroads and the entry for the International Maritime Organization would be revised to read as follows:

§ 171.7 Matter incorporated by reference.

* * * * *
(c) * * *

Source and name of Material	49 CFR Reference
Association of American Railroads * * *	
Appendix B of AAR Specification M-931 Highway Trailers, All Types, for TOFC Service, 1985 edition.	176.168.

Source and name of Material	49 CFR Reference
International Maritime Organization (IMO), Albert Embankment, London, SE1 7SR, United Kingdom. International Maritime Dangerous Goods (IMDG) Code, 1990 Consolidated Edition.	176.2, 176.5, 176.11, 176.27, 176.30, and 176.140.

8. In § 171.8, the definitions of "Away from", "Separated by a complete hold or compartment from", "Separated from", and "Separated longitudinally by a complete hold or compartment from" would be removed; the definitions of "Captain of the Port", and "trailership" and "competent authority" would be revised; and paragraph (1) of the definition "passenger-vessel" would be revised to read as follows:

§ 171.8 Definitions and abbreviations.

* * * * *
Captain of the Port (COTP) means the officer of the Coast Guard, under the command of a District Commander, so designated by the Commander for the purpose of giving immediate direction to Coast Guard law enforcement activities within an assigned area. As used in this subchapter, the term "Captain of the Port" includes an authorized representative of the Captain of the Port.
* * * * *

Competent authority means a national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials (dangerous goods). The term "Appropriate authority", as used in the ICAO Technical Instructions, has the same meaning as "Competent Authority" For purposes of this subchapter, the Director, Office of Hazardous Materials Transportation, Research and Special Programs Administration, is the Competent Authority for the United States.
* * * * *

Passenger Vessel means—(1) A vessel subject to any of the requirements of the International Convention for the Safety of Life at Sea, 1974, which carries more than 12 passengers;
* * * * *

Trailership means a vessel, other than a carfloat, specifically equipped to carry motor transport vehicles and fitted with installed securing devices to tie down each vehicle. The term "trailership" includes "Roll-on/Roll-off" (RO/RO) vessels.
* * * * *

PART 176—CARRIAGE BY VESSEL

9. The table of sections for part 176 would be amended to read as follows:

Sec.
* * * * *

176.2 Definitions.
* * * * *

176.4 Port security and safety regulations.
* * * * *

176.54 Repairs involving welding, burning and power-actuated tools and appliances.
176.76 Transport vehicles, freight containers, and portable tanks containing hazardous materials.
* * * * *

176.83 Segregation.

SUBPART G—Detailed Requirements for Class 1 (Explosive) Materials

- 176.100 Permit for Division 1.1 and 1.2 (Class A and B explosive) materials.
- 176.102 Supervisory detail.
- 176.104 Loading and unloading Class 1 (explosive) materials.
- 176.108 Supervision of Class 1 (explosive) materials handling and stowage.

Stowage

- 176.112 Application of stowage provisions.
- 176.116 General stowage conditions for Class 1 (explosive) materials.
- 176.118 Electrical requirements.
- 176.120 Lightning protection.
- 176.122 Stowage arrangements under deck.
- 176.124 Ordinary stowage.
- 176.128 Magazine stowage general.
- 176.130 Magazine stowage type A.
- 176.132 Magazine stowage type B.
- 176.133 Magazine stowage type C.
- 176.134 Vehicles.
- 176.136 Special stowage.
- 176.137 Portable magazine.
- 176.138 Deck stowage.

Segregation

- 176.140 Segregation from other classes of hazardous materials.
- 176.142 Hazardous materials of extreme flammability.
- 176.144 Segregation of Class 1 (explosive) materials.
- 176.145 Segregation in single-hold vessels.
- 176.146 Segregation from non-hazardous materials.

Precautions During Loading and Unloading

- 176.148 Artificial lighting.
- 176.150 Radio and radar.
- 176.154 Fueling (Bunkering).
- 176.156 Defective packages.
- 176.160 Protection against weather.
- 176.162 Security.
- 176.164 Fire precautions and firefighting.

Passenger Vessels

- 176.166 Transport of Class 1 (explosive) materials on passenger vessels.

Transport Units and Shipborne Barges

- 176.168 Transport of Class 1 (explosive) materials in vehicle spaces.

- 176.170 Transport of Class 1 (explosive) materials in freight containers.
 176.172 Structural serviceability of freight containers and vehicles carrying Class 1 (explosive) materials on ships.
 176.174 Transport of Class 1 (explosive) materials in shipborne barges.

Handling Class 1 (Explosive) Materials in Port

- 176.176 Signals.
 176.178 Mooring lines.
 176.180 Watchkeeping.
 176.182 Conditions for handling on board ship.
 176.184 Class 1 (explosive) materials of Compatibility Group L.
 176.190 Departure of vessel.
 176.192 Cargo handling equipment for freight containers carrying Class 1 (explosive) materials.

Magazine Vessels

- 176.194 Stowage of Class 1 (explosive) materials on magazine vessels.

Subpart H—Detailed Requirements for Class 2 (Compressed Gas) Materials

- 176.200 General stowage requirements.
 176.205 Under deck stowage requirements.
 176.210 On deck stowage requirements.
 176.220 Smoking or open flame and posting of warning signs.
 176.225 Stowage of chlorine.
 176.230 Stowage of Division 2.1 (flammable gases) materials.

Subpart I—Detailed Requirements for Class 3 (Flammable and Combustible Liquid) Materials

- 176.305 General stowage requirements.
 176.315 Fire protection requirements.
 176.320 Use of hand flashlights.
 176.325 Smoking or open flame and posting of warning signs.
 176.331 Transportation of flammable liquids with foodstuffs.
 176.340 Combustible liquids in portable tanks.

Subpart J—Detailed Requirements for Class 4 (Flammable Solids), Class 5 (Oxidizers and Organic Peroxides), and Division 1.5 (Blasting Agents) Materials

- 176.400 Stowage of Division 1.5 (blasting agents) and Class 5 (oxidizers and organic peroxides) materials.
 176.405 Stowage of charcoal.
 176.410 Division 1.5 (blasting agents) materials, ammonium nitrate and ammonium nitrate mixtures.
 176.415 Permit requirements for Division 1.5 (blasting agents), ammonium nitrates, and certain ammonium nitrate fertilizers.
 176.419 Class 4 (flammable solids) or Class 5 (oxidizers and organic peroxides) materials transported with foodstuffs.

Subpart L—Detailed Requirements for Division 2.3 (Poison A) and Division 6.1 (Poison B) Materials

- 176.600 General stowage requirement.
 176.605 Care following leakage or sifting of Division 2.3 and 6.1 poisons (Poisons A or B).

Subpart N—Detailed Requirements for Class 8 (Corrosive Materials) Materials

- 176.800 General stowage requirements.
 176.805 On deck stowage.

Subpart O—Detailed Requirements for Cotton and Vegetable Fibers, Motor Vehicles, and Asbestos

- 176.900 Packaging and stowage of cotton and vegetable fibers; general.
 176.901 Stowage of cotton or vegetable fibers with rosin or pitch.
 176.903 Stowage of cotton or vegetable fibers with coal.
 176.905 Motor vehicles or mechanical equipment powered by internal combustion engines.
 176.906 Stowage and handling of asbestos.

10. The authority citation for part 176 would be revised to read as follows:

Authority: 49 app. U.S.C. 1803, 1804, 1805, 1808; 49 CFR part 1.53, app. A to part 1.

11. Section 176.2 would be added to read as follows:

§ 176.2 Definitions.

As used in this part—

Cantiline means the v-shaped groove between two abutting, parallel horizontal cylinders.

Cargo net means a net made of fiber or wire used to provide convenience in handling loose or packaged cargo to and from a vessel.

Closed freight container means a freight container which totally encloses its contents by permanent structures. A freight container formed partly by a tarpaulin, plastic sheet, or similar material is not a closed freight container.

Commandant (G-MTH) means the Chief, Marine Technical and Hazardous Materials Division, Office of Marine Safety, Security and Environmental Protection, United States Coast Guard, Washington, DC 20593-0001.

Compartment means any space on a vessel that is enclosed by the vessel's decks and its sides or permanent steel bulkheads.

CSC safety approval plate means the safety approval plate specified in Annex I of the International Convention for Safe Containers (1972) and conforming to the specifications in 49 CFR 451.23 and 451.25. The plate is evidence that a freight container was designed, constructed, and tested under international rules incorporated into U.S. regulations in 49 CFR parts 450 through 453. The plate is found in the door area of the container.

Deck structure means a structure of substantial weight and size located on the weather deck of a vessel and integral with the deck. This term includes superstructures, deck houses, mast houses, and bridge structures.

Draft means a load or combination of loads capable of being hoisted into or out of a vessel in a single lift.

Dunnage means lumber of not less than 25 mm (1 inch) commercial thickness or equivalent material laid over or against structures such as tanktops, decks, bulkheads, frames, plating, or ladders, or used for filling voids or fitting around cargo, to prevent damage during transportation.

Explosives anchorage means an anchorage so designated under 33 CFR part 110, subpart B.

Explosive article means an article or device which contains one or more explosive substances. Individual explosive articles are identified in the schedules for Class 1 (explosive) articles found in the IMDG Code.

Explosives handling facility means—

(1) A "designated waterfront facility" designated under 33 CFR part 126 when loading, handling, and unloading Class 1 (explosive) materials; or

(2) A facility for loading, unloading, and handling military Class 1 (explosive) materials which is operated or controlled by an agency of the Department of Defense.

Explosive substance means a solid or liquid material, or a mixture of materials, which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to its surroundings. Individual explosive substances are identified in the schedules for Class 1 (explosive) substances in the IMDG Code.

Handling means the operation of loading and unloading a vessel; transfer to, from, or within a vessel, and any ancillary operations.

Hold means a compartment below deck that is used exclusively for the carriage of cargo.

In containers or the like means in any clean, substantial, weatherproof box structure which can be secured to the vessel's structure, including a portable magazine or a closed transport unit. Whenever this stowage is specified, stowage in deckhouses, mast lockers and oversized weatherproof packages (overpacks) is also acceptable.

Incompatible materials means two materials whose stowage together may result in undue hazards in the case of leakage, spillage, or other accident.

Landing mat means a shock absorbing pad used in loading Class 1 (explosive) materials on vessels.

Machinery Spaces of Category A are those spaces, and trunks to such spaces, which contain:

(1) Internal combustion machinery used for main propulsion:

(2) Internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kw; or

(3) Any oil-fired boiler or fuel unit.

Magazine means an enclosure designed to protect certain goods of Class 1 (explosive) materials from damage by other cargo and adverse weather conditions during loading, unloading, and when in transit; and to prevent unauthorized access. A magazine may be a fixed structure in the vessel, a closed freight container, a closed transport vehicle, or a portable magazine.

Master of the Vessel, as used in this part, includes the person in charge of an unmanned vessel or barge.

Open freight container means a freight container that does not totally enclose its contents by permanent structures.

Overstowed means a package or container that is stowed directly on top of another. However, with regard to Class 1 (explosive) stowage, such goods may themselves be stacked to a safe level but other goods should not be stowed directly on top of them.

Pallet means a portable platform for stowing, handling, and moving cargo.

Palletized unit means packages or unpacked objects stacked on a pallet, banded and secured to the pallet by metal, fabric, or plastic straps for the purpose of handling as a single unit.

Pie plate means a round, oval, or hexagonal pallet without sideboards, used in conjunction with a cargo net to handle loose cargo on board a vessel.

Portable magazine means a strong, closed, prefabricated, steel or wooden, closed box or container, other than a freight container, designed and used to handle Class 1 (explosive) materials either by hand or mechanical means.

Readily combustible material means a material which may or may not be classed as a hazardous material but which is easily ignited and supports combustion. Examples of readily combustible materials include wood, paper, straw, vegetable fibers, products made from such materials, coal, lubricants, and oils. This definition does not apply to packaging material or dunnage.

Responsible person means a person empowered to take all decisions relating to his or her specific task, and having the necessary knowledge and experience for that purpose.

Safe working load means the maximum gross weight that cargo handling equipment is approved to lift.

Skilled person means a person having the knowledge and experience to perform a certain duty.

Skipboard means a square or rectangular pallet without sideboards, usually used in conjunction with a cargo net to handle loose cargo on board a vessel.

Splice as used in § 176.172 of this part, means any repair of a freight container main structural member which replaces material, other than complete replacement of the member.

Transport unit means a transport vehicle or a freight container. A "closed transport unit" means a transport unit in which the contents are totally enclosed by permanent structures. An "open transport unit" means a transport unit which is not a closed transport unit. Transport units with fabric sides or tops are not closed transport units for the purposes of this part.

Tray means a type of pallet constructed to specific dimensions for handling a particular load.

12. In § 176.3, paragraph (b) would be revised to read as follows:

§ 176.3 Unacceptable hazardous materials shipments.

(b) A carrier may not transport by vessel any explosive or explosive composition described in § 173.54 of this subchapter.

13. Section 176.4 would be added to read as follows:

§ 176.4 Port security and safety regulations.

(a) Each carrier, master, agent, and charterer of a vessel and all other persons engaged in handling hazardous materials on board vessels shall comply with the applicable provisions of 33 CFR parts 6, 109, 110, 125, 126, and 160.

(b) Division 1.1 and 1.2 (Class A and B explosive) materials may only be loaded on and unloaded from a vessel at—

(1) A facility of particular hazard as defined in 33 CFR 126.05(b);

(2) An explosives anchorage listed in 33 CFR part 110; or

(3) A facility operated or controlled by the Department of Defense.

(c) With the concurrence of the COTP, Division 1.1 and 1.2 (Class A and B explosive) materials may be loaded on or unloaded from a vessel in any location acceptable to the COTP.

14. In § 176.5, paragraph (e) would be removed and paragraph (b)(6) would be revised to read as follows:

§ 176.5 Application to vessels.

(b) * * *

(6) A tug or towing vessel except when towing another vessel having

Class 1 (explosive) materials, flammable liquids, or Division 2.1 (flammable gas) materials on board on deck in which case the tug or towing vessel shall make such provisions to guard against and extinguish fire as the Coast Guard may prescribe;

15. In § 176.9, paragraph (a) introductory text would be revised to read as follows:

§ 176.9 "Order-Notify" or "C.O.D." shipments.

(a) A carrier may not transport Division 1.1 or 1.2 (Class A explosive) materials, detonators, or boosters with detonators which are:

16. In § 176.11, paragraphs (a)(1) and (a)(2) would be removed and paragraphs (a), (c), and (f) would be revised to read as follows:

§ 176.11 Exceptions.

(a) A hazardous material may be offered and accepted for transportation by vessel when in conformance with the requirements of the IMDG Code, subject to the conditions and limitations set forth in § 171.12(b) of this subchapter.

(c) The requirements of this subchapter governing the transportation of combustible liquids do not apply to the transportation of combustible liquids in non-bulk (see definitions in § 171.8) packages on board vessels.

(f) Paragraph (a) of this section does not apply to hazardous materials, including certain hazardous wastes and hazardous substances as defined in § 171.8 of this subchapter, which are not subject to the requirements of the IMDG Code.

17. In § 176.30, paragraphs (a)(3) and (a)(5) would be revised to read as follows:

§ 176.30 Dangerous cargo manifest.

(3) Shipping name and identification number of each hazardous material on board as listed in § 172.101 of this subchapter or as listed in the IMDG Code.

(i) An emergency response telephone number as prescribed in subpart G of part 172 of this subchapter.

(ii) [Reserved]

(4) * * *

(5) Classification of the hazardous material in accordance with either:

(i) The Hazardous Materials Table, § 172.101 of this subchapter; or

(ii) The International Maritime Organization's IMDG Code.

(6) * * *

18. In § 176.54, the section heading and paragraphs (b)(1) and (b)(2) would be revised to read as follows:

§ 176.54 Repairs involving welding, burning, and power-actuated tools and appliances.

(b) * * *

(1) The repairs or work are approved by the COTP under 33 CFR 162.15(c); or

(2) Emergency repairs to the vessel's main propelling or boiler plant or auxiliaries are necessary for the safety of the vessel. If such repairs are performed, the master of the vessel must immediately notify the nearest COTP.

19. Section 176.57 would be revised to read as follows:

§ 176.57 Supervision of handling and stowage.

(a) Hazardous materials may be handled or stowed on board a vessel only under the direction and observation of a responsible person assigned this duty.

(b) For a vessel engaged in coastwise voyages, or on rivers, bays, sounds or lakes, including the Great Lakes when the voyage is not foreign-going, the responsible person may be an employee of the carrier and assigned this duty by the carrier, or a licensed officer attached to the vessel and assigned by the master of the vessel.

(c) For a domestic vessel engaged in a foreign-going or intercoastal voyage, the responsible person must be an officer possessing an unexpired license issued by the USCG and assigned this duty by the master of the vessel.

(d) For a foreign vessel, the responsible person must be an officer of the vessel assigned this duty by the master of the vessel.

20. Section 176.58 would be revised to read as follows:

§ 176.58 Preparation of the vessel.

(a) Each hold or compartment in which hazardous materials are to be stowed must be free of all debris before the hazardous materials are stowed. Bilges must be examined and all residue of previous cargo removed.

(b) All decks, gangways, hatches, and cargo ports over or through which hazardous materials must be passed or handled in loading or unloading must be free of all loose materials before cargo handling operations begin.

(c) No debris that creates a fire hazard or a hazardous condition for persons engaged in handling hazardous materials may be on the weather deck of a vessel during loading or unloading operations.

(d) Hatch beams and hatch covers may not be stowed in a location that would interfere with cargo handling.

21. In § 176.69, paragraph (a) would be revised and paragraphs (d) and (e) would be added to read as follows:

§ 176.69 General stowage requirements for hazardous materials.

(a) Hazardous materials (except as provided in paragraph (c) of this section and Class 9 (miscellaneous hazardous materials) materials) must be stowed in a manner that will facilitate inspection during the voyage, its removal from a potentially dangerous situation, and the removal of packages in case of fire.

(d) Packages of hazardous materials must be secured and dunnaged to prevent movement in any direction. Vertical restraints are not required if the shape of the package and the stuffing pattern preclude shifting of the load.

(e) Packages of hazardous materials must be braced and dunnaged so that it is not likely to be pierced by the dunnage or crushed by a superimposed load.

§ 176.74 [Amended]

22. In § 176.74 paragraph (c), the words "ORM material" would be replaced with the words "Class 9 (miscellaneous hazardous materials) materials".

23. In § 176.76, paragraphs (a)(9) and (c) would be removed and reserved, and the section heading and paragraphs (a) introductory text, (a)(2), and (b) would be revised to read as follows:

§ 176.76 Transport vehicles, freight containers, and portable tanks containing hazardous materials.

(a) Except as provided in paragraphs (b) through (f) of this section, hazardous materials authorized to be transported by vessel may be carried on board a vessel in a transport vehicle or freight container, subject to the following conditions (see additional requirements concerning the transport of Class 1 (explosive) materials in §§ 176.168 through 176.172 of this subchapter):

(1) * * *

(2) All packages in the transport vehicle or freight container must be secured to prevent movement in any direction. Restraint is not required if the shape of the packages, loading pattern, and horizontal restraint preclude vertical movement of the load within the freight container or transport vehicle;

(3) * * *

(9) [Removed and reserved]

* * *

(b) A transport vehicle containing hazardous materials may be carried

only on board a trailership, trainship, ferry vessel or car float.

(c) [Removed and reserved]

24. In § 176.78, paragraphs (a), (d), (e)(1), (f)(3), and (l) would be revised to read as follows:

§ 176.78 Use of power-operated industrial trucks on board vessels.

(a) *Power-operated trucks.* A power-operated truck (including a power-operated tractor, forklift, or other specialized truck used for cargo handling) may not be used on board a vessel in a space containing a hazardous material unless the truck conforms with the requirements of this section. The COTP may suspend or prohibit the use of cargo handling vehicles or equipment when that use constitutes a safety hazard.

(d) *Class 1 (explosive) materials.* No power-operated truck may be used to handle Class 1 (explosive) materials or other cargo in an area near Class 1 (explosive) materials on board a vessel except:

(1) A power-operated truck designated EE or EX.

(2) A power-operated truck designated LPS, GS, D, or DS may be used under conditions acceptable to the COTP.

(e) *Other hazardous materials.* (1) Only an "EX", "EE", "GS", "LPA", or "DS" truck may be used in a hold or compartment containing Class 2.1 (flammable gas) materials, flammable liquids, Class 4 (flammable solids) materials, or Class 5 (oxidizers or organic peroxides) materials, cottons or other vegetable fibers, or bulk sulfur.

(f) * * *

(3) A forklift truck used to handle small objects or unstable loads must be equipped with a load backrest extension having height, width, and strength sufficient to prevent any load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt. The load backrest extension must be constructed in a manner that does not interfere with good visibility.

(l) *Packaging and stowage of fuel on board a vessel.* Division 2.1 (flammable gas) materials and flammable liquids as fuel for industrial trucks must be packaged and stowed as authorized in 46 CFR 147.60 or 46 CFR 147.45, respectively.

25. Section 176.83 would be revised to read as follows:

§ 176.83 Segregation.

(a) *General.* (1) This section applies to all cargo spaces on deck and under deck on all types of vessels.

(2) Segregation is obtained by maintaining certain distances between incompatible hazardous materials or by requiring the presence of one or more steel bulkheads or decks between them or a combination thereof. Intervening spaces between such hazardous materials may be filled with other cargo which is not incompatible with the hazardous materials.

(3) In addition to general segregation between classes of hazardous materials, there may be a need to segregate a particular material from other materials which would contribute to its hazard. Such segregation requirements are indicated by code numbers in Column 10(c) of the § 172.101 Table.

(4) Segregation is not required between hazardous materials of different classes which comprise the same substance but vary only in their

water content (e.g., sodium sulphide in Division 4.2 or Class 8).

(5) Whenever hazardous materials are stowed together, whether or not in a transport unit, the segregation of such hazardous materials from others must always be in accordance with the most restrictive requirements for any of the hazardous materials concerned.

(6) When the § 172.101 Table or § 172.402 requires packages to bear a subsidiary hazard label or labels, the segregation appropriate to the subsidiary hazards must be applied when that segregation is more restrictive than that required by the primary hazard. For the purposes of paragraph (a)(6) of this section, the segregation requirements corresponding to an explosive subsidiary hazard are those for Division 1.4 (Class C explosive) materials.

(7) Where, for the purposes of segregation, terms such as "away from" a particular hazard class are used in the § 172.101 Table, the segregation requirement applies to:

(i) All hazardous materials within the hazard class; and

(ii) All hazardous materials for which a secondary hazard label of that class is required.

(8) Notwithstanding paragraphs (a)(6) and (a)(7) of this section, hazardous materials of the same class may be stowed together without regard to segregation required by secondary hazards if the materials are not incompatible.

(9) Stowage in a shelter-tween deck cargo space is not considered to be "on deck" stowage.

(b) *General Segregation Table:* The following table sets forth the general requirements for segregation between the various classes of hazardous materials. The properties of materials within each class may vary greatly and may require greater segregation than is reflected in this table. If the § 172.101 Table sets forth particular requirements for segregation, they take precedence over these general requirements.

TABLE 176.83(b).—GENERAL SEGREGATION REQUIREMENTS FOR HAZARDOUS MATERIALS

[Segregation must also take account of a single secondary hazard label, as required by paragraph (a)(6) of this section.]

Class		1.1	1.2	1.3	1.4	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
		1.5			1.6														
Explosives.....	1.1, 1.2, 1.5	*	*	*	4	2	2	4	4	4	4	4	4	4	2	4	2	4	X
Explosives.....	1.3	*	*	*	4	2	2	4	3	3	4	4	4	4	2	4	2	2	X
Explosives.....	1.4, 1.6	*	*	*	2	1	1	2	2	2	2	2	2	2	X	4	2	2	X
Flammable gases.....	2.1	4	4	2	X	X	X	2	1	2	X	2	2	2	X	4	2	1	X
Non-toxic, non-flammable gases.....	2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X	
Poisonous gases.....	2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X	
Flammable liquids.....	3	4	4	2	2	1	2	X	X	2	1	2	2	2	X	3	2	X	
Flammable solids.....	4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X	
Spontaneously combustible substances.....	4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X	
Substances which are dangerous when wet.....	4.3	4	4	2	X	X	X	1	X	1	X	2	2	X	2	2	1	X	
Oxidizing substances.....	5.1	4	4	2	2	X	X	2	1	2	2	2	X	2	1	3	1	2	
Organic peroxides.....	5.2	4	4	2	2	1	2	2	2	2	2	2	2	X	1	3	2	X	
Poisons.....	6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X	
Infectious substances.....	6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X	
Radioactive materials.....	7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X	
Corrosives.....	8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X	
Miscellaneous dangerous substances.....	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Numbers and symbols relate to the following terms as defined in paragraph (c) of this section:

- 1—"Away from."
- 2—"Separated from."
- 3—"Separated by a complete compartment or hold from."
- 4—"Separated longitudinally by an intervening complete compartment or hold from."
- x—The segregation, if any, is shown in the § 172.101 Table.
- *—See § 176.144 of this Part for segregation within Class 1.

(c) *Segregation requirements for breakbulk cargo.* (1) The requirements of this paragraph apply to the segregation of packages containing hazardous materials and stowed as breakbulk cargo;



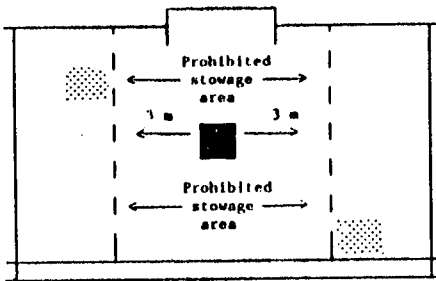
(2) Definition of the segregation terms:
(i) Legend:
(A) Reference package.

(B) Package containing incompatible goods.

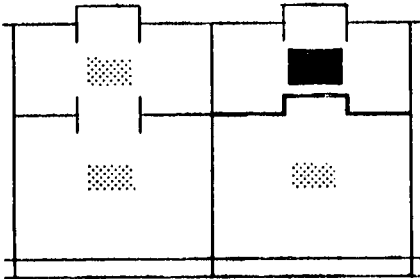
(C) Deck resistant to fire and liquid.

Note: Full vertical lines represent transverse bulkheads between compartments or holds resistant to fire and liquid.

(ii) "Away from": Effectively segregated so that the incompatible materials cannot interact dangerously in the event of an accident but may be carried in the same compartment or hold or on deck provided a minimum horizontal separation of 3 meters (10 feet) projected vertically is obtained.

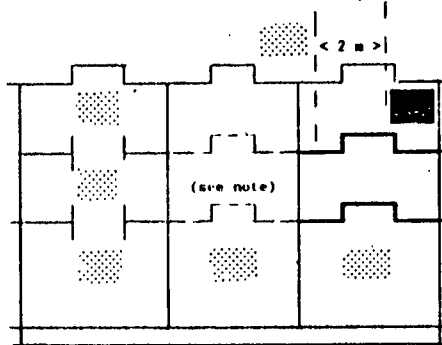


(iii) "Separated From": In different compartments or holds when stowed under deck. If the intervening deck is resistant to fire and liquid, a vertical separation (i.e., in different compartments) may be accepted as equivalent to this segregation. For "on deck" stowage, this segregation means a separation by a distance of at least 6 meters (20 feet) horizontally.



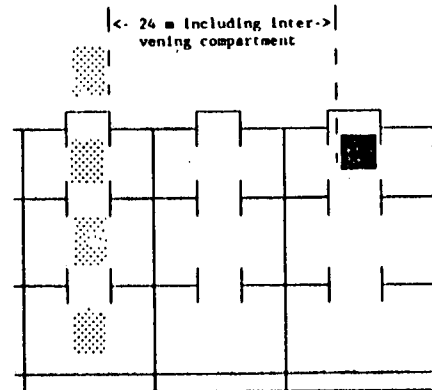
(iv) "Separated by a complete compartment or hold from": Either a vertical or horizontal separation. If the intervening decks are not resistant to fire and liquid, then only a longitudinal separation (i.e., by an intervening

complete compartment or hold) is acceptable. For "on deck" stowage, this segregation means a separation by a distance of at least 12 meters (39 feet) horizontally. The same distance must be applied if one package is stowed "on deck" and the other one in an upper compartment.



Note: One of the two decks must be resistant to fire and liquid.

(v) "Separated longitudinally by an intervening complete compartment or hold from": Vertical separation alone does not meet this requirement. Between a package "under deck" and one "on deck" a minimum distance of 24 meters (79 feet) including a complete compartment must be maintained longitudinally. For "on deck" stowage, this segregation means a separation by a distance of at least 24 meters (79 feet) longitudinally.



(d) Segregation in transport units: Two hazardous materials for which any segregation is required may not be stowed in the same transport unit.

(e) Segregation of hazardous materials stowed as breakbulk cargo from those packed in transport units:

(1) Hazardous materials stowed as breakbulk cargo must be segregated from materials packed in open transport units in accordance with paragraph (c) of this section.

(2) Hazardous materials stowed as breakbulk cargo must be segregated from materials packed in closed freight containers in accordance with paragraph (c) of this section, except that:

(i) Where "away from" is required, no segregation between packages and the close transport units is required; and

(ii) Where "separated from" is required, the segregation between the packages and the closed transport units may be the same as for "away from".

(f) Segregation of containers on board container vessels:

(1) This paragraph applies to the segregation of freight containers which are carried on board container vessels, or on other types of vessels provided these cargo spaces are properly fitted for permanent stowage of freight containers during transport.

(2) For container vessels which have cargo spaces used for breakbulk cargo or any other method of stowage, the appropriate paragraph of this section applies to the relevant cargo space.

(3) Segregation Table: The Segregation for Freight Containers Table sets forth the general requirements for segregation between freight containers on board container vessels.

(4) In the Segregation for Freight Containers Table, a "container space" means a distance of not less than 6 meters (20 feet) fore and aft or not less than 2.5 meters (8 feet) athwartship.

TABLE 176.83(f).—SEGREGATION FOR FREIGHT CONTAINERS TABLE

Segregation requirement	Vertical			Horizontal						
	Closed versus closed	Closed versus open	Open versus open		Closed versus closed		Closed versus open		Open versus open	
					On deck	Under deck	On deck	Under deck	On deck	Under deck
1 "Away from".....	One on top of the other permitted.	Open on top of closed permitted. Otherwise as for open versus open.	Not in the same vertical line unless segregated by a deck.	Fore and Aft. Athwart-ships.	No restriction. No restriction.	No restriction. No restriction.	No restriction. No restriction.	No restriction. No restriction.	One container space. One container space.	One container space or one bulkhead. One container space.
2 "Separated from".		As for open versus open.	Not in the same vertical line unless segregated by a deck.	Fore and aft. Athwart-ships.	One container space. One container space.	One container space or one bulkhead. One container space.	One container space. One container space.	One container space or one bulkhead. Two container spaces.	One container space. Two container spaces.	One container space. One bulkhead.
3 "Separated by a complete compartment or hold from".				Fore and aft. Athwart-ships.	One container space. Two container spaces.	One bulkhead. One bulkhead..	One container space. Two container spaces.	One bulkhead. One bulkhead.	Two container spaces. Three container spaces.	Two bulkheads. Two bulkheads.
4 "Separated longitudinally by an intervening complete compartment or hold from".	Prohibited.....	Prohibited....	Prohibited....	Fore and aft. Athwart-ships.	Four container spaces. Prohibited....	One bulkhead and four container spaces*. Prohibited....	Four container spaces. Prohibited....	Two bulkheads. Prohibited....	Four container spaces. Prohibited....	Two bulkheads. Prohibited.

* Containers not less than 6 meters (20 feet) from intervening bulkhead.
NOTE: All bulkheads and decks must be resistant to fire and liquid.

(g) Segregation of transport units on board trailerships:

(1) The requirements of this paragraph apply to the segregation of transport units which are carried on board trailerships or in "roll-on/roll-off" cargo spaces.

(2) For trailerships which have spaces suitable for breakbulk cargo, containers, or any other method of stowage, the appropriate paragraph of this section applies to the relevant cargo space.

(3) Segregation Table: The Segregation of Transport Units on Board

Trailerships and Trainships table sets forth the general requirements for segregation between transport units on board trailerships.

TABLE 176.83(g).—SEGREGATION OF TRANSPORT UNITS ON BOARD TRAILERSHIPS AND TRAINSHIPS

Segregation requirement		Closed versus closed		Closed versus open		Open versus open	
		On deck	Under deck	On deck	Under deck	On deck	Under deck
1 "Away from".....	Fore and aft.....	No restriction.....	No restriction.....	No restriction.....	No restriction.....	At least 3 meters..	At least 3 meters
2 "Separated from".....	Athwart-ships.....	No restriction.....	No restriction.....	No restriction.....	No restriction.....	At least 3 meters..	At least 3 meters
	Fore and aft.....	At least 6 meters..	At least 6 meters or one bulkhead.	At least 6 meters..	At least 6 meters or one bulkhead.	At least 6 meters..	At least 12 meters or one bulkhead
3 "Separated by a complete compartment or hold from".	Athwart-ships.....	At least 3 meters..	At least 3 meters or one bulkhead.	At least 3 meters..	At least 6 meters or one bulkhead.	At least 6 meters..	At least 12 meters or one bulkhead
	Fore and aft.....	At least 12 meters.	At least 24 meters+deck.	At least 24 meters.	At least 24 meters+deck.	At least 36 meters.	Two decks or two bulkheads
	Athwart-ships.....	At least 12 meters.	At least 24 meters+deck.	At least 24 meters.	At least 24 meters+deck.	At least 36 meters.	Prohibited

TABLE 176.83(g).—SEGREGATION OF TRANSPORT UNITS ON BOARD TRAILERSHIPS AND TRAINSHIPS—Continued

Segregation requirement		Closed versus closed		Closed versus open		Open versus open	
		On deck	Under deck	On deck	Under deck	On deck	Under deck
4 "Separated longitudinally by an intervening complete compartment or hold from".	Fore and aft.....	At least 36 meters.	Two bulkheads or at least 36 meters + two decks.	At least 36 meters.	At least 48 meters including two bulkheads.	At least 48 meters.	Prohibited
	Athwart-ships.....	Prohibited.....	Prohibited.....	Prohibited.....	Prohibited.....	Prohibited.....	Prohibited

NOTE: All bulkheads and decks must be resistant to fire and liquid.

(h) Segregation on board barge-carrying vessels:

(1) The requirements of this section apply to the segregation in shipborne barges as well as to the segregation between shipborne barges carried on board vessels specially designed and equipped to carry such barges.

(2) On barge-carrying vessels which incorporate other stowage spaces or any other method of stowage, barges containing hazardous materials must be segregated from hazardous materials not stowed in barges as prescribed in paragraphs (b) and (j) of this section.

(i) Segregation in shipborne barges: Hazardous materials transported in shipborne barges must be segregated as prescribed in paragraphs (a), (b), and (c) of this section.

(j) Segregation between shipborne barges on barge-carrying vessels:

(1) When a shipborne barge is loaded with two or more hazardous materials with different requirements for segregation, the most stringent applicable segregation requirement must be applied.

(2) "Away from" and "separated from" require no segregation between shipborne barges.

(3) For barge-carrying vessels with vertical holds, "Separated by a complete compartment or hold from" means that separate holds are required. On barge-carrying vessels having horizontal barge levels, separate barge levels are required and the barges may not be in the same vertical line.

(4) "Separated longitudinally by an intervening complete compartment or hold from" means, for barge-carrying vessels with vertical holds, that separation by an intervening hold or engine room is required. On barge-carrying vessels having horizontal barge levels, separate barge levels and a longitudinal separation by at least two intervening barge spaces are required.

(k) Segregation requirements for ferry vessels. A ferry vessel (when operating either as a passenger or cargo vessel) that cannot provide the separation required in this section may carry incompatible hazardous materials in separate transport vehicles if they are

stowed to give the maximum possible separation.

26. In § 176.84, as proposed at 52 FR 42989 on November 6, 1987, paragraph (c) would be added to read as follows:

§ 176.84 Other requirements for stowage and segregation for cargo vessels and passenger vessels.

(c) Provisions for the stowage of Class 1 (explosive) materials:

(1) The stowage provisions of § 172.101 Table notwithstanding, small quantities of prohibited Class 1 (explosive) materials, except Class 1 (explosive) materials in compatibility groups A, H, J, K, and L, may be transported on passenger vessels in accordance with § 176.166 of this part. Where so permitted, these Class 1 (explosive) materials must be stowed in the same manner as is required for cargo vessels.

(2) Unless specified otherwise in column 10(c) of the § 172.101 Table, explosive substances and articles which require magazine stowage ("6" in column 10(a) of the Table) must be stowed as follows:

- (i) On deck: in containers or the like.
- (ii) Under deck: in magazines, Type B.

(3) Unless otherwise specified in column 10(c) of the § 172.101 Table, explosive substances and explosive articles which are not required to be stowed in magazines ("1, 2" in column 10(a) of the Table) must be stowed as follows:

- (i) On deck: in containers or the like.
- (ii) Under deck: ordinary stowage.

(4) The following notes in column 10(c) of the § 172.101 Table apply to the transport of Class 1 (explosive) materials by vessel:

Note	Provision
1E.....	Cargo vessel, on deck, in containers or the like.
2E.....	Cargo vessel, on deck, in portable magazines.
3E.....	Cargo vessel, on deck, secured to the vessel's structure.
4E.....	Cargo vessel, under deck, Magazine, Type A.

Note	Provision
5E.....	Cargo vessel, under deck, Magazine, Type B.
6E.....	Cargo vessel, under deck, Magazine, Type C.
7E.....	Cargo vessel, under deck, Ordinary Stowage.
8E.....	Cargo vessel, under deck, Special Stowage.
9E.....	Passenger vessel, stowage as for cargo vessel.
10E.....	Magazine, Type B, if in effectively sealed dust-tight packages; otherwise, Magazine, Type A.
11E.....	On-deck portable magazine must be steel.
12E.....	Stowage as specified by Competent Authority.
13E.....	On deck, in containers not exceeding 2.5t gross per container or group. There may not be more than 2 such containers or groups; they must be separated from each other, and from any other explosive substance or article by at least 9 m. Containers or groups must be at least 9 m from the bridge or accommodation.
14E.....	On deck, in steel portable magazines or steel freight containers.
15E.....	On-deck, containers must be leak-proof.
16E.....	On deck, in containers or sheeted stacks. The gross weight of each stack or group of containers may not exceed 2.5t. There may not be more than 2 stacks or groups of containers; they must be separated from each other, and from any other explosive substances or articles by at least 9m. Stacks or containers must be at least 9 m from the bridge or accommodation.
17E.....	On deck stowage is recommended.
18E.....	For international shipments, stow in the same manner as is required for "cartridges for weapons' inert projectile" UN0012, Class 1.4S.
19E.....	Substances which contain ammonium nitrate or other ammonium salts must be stowed "away from" Explosives, Blasting, Type C, UN 0083.
20E.....	Stow in accordance with § 172.84(c)(5).
21E.....	Cargo space ventilation must be carefully controlled to avoid excessive condensation.
22E.....	May not be stowed together with explosive substances containing ammonium nitrate or other ammonium salts.
23E.....	Segregate from other Class 1 (explosive) materials in the same manner as is required for flammable liquids.

(5) Explosive articles designated by special provision "20E" in column

10(c) of the § 172.101 Table must be stowed as follows:

(i) Projectiles for guns, cannon, or mortars:

(A) *On deck*: in containers or the like.

(B) *Under deck*: ordinary stowage.

(ii) All other types:

(A) *On deck*: in steel portable magazines or steel portable magazines which are capable of preventing leakage of their contents.

(B) *Under deck*: Special stowage.

§ 176.90 [Amended]

27. In § 176.90, the word "explosive" would be revised to read "Class 1 (explosive) material" both places it appears.

§ 176.91 [Amended]

28. In § 176.91, the words "six gallons" would be revised to read "23 liters (six gallons)".

§ 176.92 [Amended]

29. In § 176.92, the words "compressed gas" would be revised to read "Class 2 (compressed gas) material".

30. In § 176.93, paragraph (a) introductory text would be revised to read as follows:

§ 176.93 Vehicles having refrigerating or heating equipment.

(a) A transport vehicle fitted with refrigerating or heating equipment using a flammable liquid or Division 2.1 (flammable gas) material, or diesel oil as fuel, may be transported on a ferry vessel. However, the refrigerating or heating equipment may not be operated while the vehicle is on the vessel, unless the equipment complies with the following requirements:

* * * * *

31. Section 176.96 would be revised to read as follows:

§ 176.96 Materials of construction.

Barges used to transport hazardous materials must be constructed of steel.

§ 176.98 [Amended]

32. In § 176.98, the words "Column (7)" would be changed to "Column (10)".

33. Section 176.99 would be revised to read as follows:

§ 176.99 Permit requirements for certain hazardous materials.

The permits required by §§ 176.100 and 176.415 for loading, unloading, and handling Division 1.1 and 1.2 (Class A explosive) materials, Division 1.5 (blasting agents) materials, ammonium nitrate and certain ammonium nitrate mixtures and fertilizers must be obtained before these materials may be loaded on, unloaded from, or handled on board a barge or barge carrying vessel.

However, a barge loaded with these materials being placed on, removed from, or handled on board a barge carrying vessel is not subject to these permit requirements.

34. Subpart G would be revised to read as follows:

Subpart G—Detailed Requirements for Class 1 (Explosive) Materials

§ 176.100 Permit for Division 1.1 and 1.2 (Class A and B explosive) materials.

Before Division 1.1 and 1.2 (Class A and B explosive) materials may be discharged from, loaded on, handled or restowed on board a vessel at any place in the United States, the carrier must obtain a permit from the COTP. Exceptions to this permit requirement may be authorized by the COTP.

§ 176.102 Supervisory detail.

(a) Except as provided in paragraph (c) of this section, the COTP may assign a USCG supervisory detail to any vessel to supervise the loading, handling or unloading of Class 1 (explosive) materials.

(b) The owner, agent, charterer, master or person in charge of the vessel, and all persons engaged in the handling, loading, unloading, and stowage of Class 1 (explosive) materials shall obey all orders that are given by the officer in charge of the supervisory detail.

(c) If Class 1 (explosive) materials are loaded onto or unloaded from a vessel at a facility operated or controlled by the Department of Defense, the Commanding Officer of that facility may decline the USCG supervisory detail. Whenever the supervisory detail is declined, the Commanding Officer of the facility shall ensure compliance with the regulations in this part.

§ 176.104 Loading and unloading Class 1 (explosive) materials.

(a) Packages of Class 1 (explosive) materials may not be thrown, dropped, rolled, dragged, or slid over each other or over a deck.

(b) When Class 1 (explosive) materials are stowed in a hold below one in which any cargo is being handled, the hatch in the deck dividing the two holds must have all covers securely in place.

(c) Drafts of Class 1 (explosive) materials must be handled in accordance with the following:

(1) A draft may not be raised, lowered, or stopped by sudden application of power or brake.

(2) A draft may not be released by tripping or freeing one side of the cargo-handling equipment and tumbling the Class 1 (explosive) materials off.

(3) All drafts, beams, shackles, bridles, slings, and hoods must be manually freed before the winch takes control.

(4) Slings may not be dragged from under a draft by winching except for the topmost layer in the hold when power removal is the only practical method and when the cargo cannot be toppled.

(5) Handles or brackets on packages in a draft may not be used for slinging purposes.

(d) A combination woven rope and wire sling or a sling that is formed by use of an open hook may not be used in handling Class 1 (explosive) materials.

(e) Only a safety hook or a hook that has been closed by wire may be used in handling drafts of Class 1 (explosive) materials.

(f) Wire rope or wire rope assemblies, including splices and fittings, used in handling Class 1 (explosive) materials must be unpainted and kept bare to permit inspection of their safe working condition. A mechanical end fitting (pressed fitting) may be used in place of an eye splice, if the efficiency of the mechanical end fitting is at least equal to the efficiency of an eye splice prepared as prescribed in 29 CFR 1918.51(c)(1).

(g) Packages of Division 1.1 and 1.2 (Class A and B explosive) materials which are not part of a palletized unit must be loaded and unloaded from a vessel using a chute or conveyor as described in § 176.163, or a mechanical hoist and a pallet, skipboard, tray, or pie plate fitted with a cargo net or sideboards.

(h) Packages of Division 1.1 and 1.2 (Class A and B explosive) materials must be loaded or unloaded in accordance with the following:

(1) A cargo net with a pallet, skipboard, tray, or pie plate, must be loaded so that a minimum displacement of packages occurs when it is lifted.

(2) A cargo net must completely encompass the bottom and sides of the draft. The mesh of the cargo net must be of a size and strength that will prevent a package in the draft from passing through the net.

(3) When a tray is used in handling packages, no package may extend more than one-third its vertical dimension above the sideboard of the tray.

(i) A landing mat must be used when a draft of Division 1.1 or 1.2 (Class A and B explosive) materials is deposited on deck. The landing mat must have dimensions of at least 1 meter (3 feet) wide, 2 meters (6 feet) long, and 10 cm (4 inches) thick, and be made of woven hemp, sisal, or similar fiber, or foam

rubber, polyurethane or similar resilient material.

(j) In addition to the other requirements of this section, packages of Division 1.1 and 1.2 (Class A and B explosive) materials must be handled in accordance with the following:

(1) Packages may not be loaded or unloaded through a hatch at the same time that other cargo is being handled in any hold served by that hatch.

(2) Packages may not be loaded or unloaded from the same hatch by using two pieces of cargo equipment unless the equipment is positioned at the forward and aft ends of the hatch.

(3) Packages may not be lifted over Class 1 (explosive) materials or other hazardous materials.

(4) The height of any structure, equipment, or load on a deck over which packages must be lifted may not be higher than the hatch coaming or bulwark, or 1 meter (3 feet), whichever is greater.

(k) Unpackaged explosive devices may not be handled by their lifting lugs or suspension lugs.

(l) A chute may not be used when loading or unloading Class 1 (explosive) materials in compatibility group A or B.

§ 176.108 Supervision of Class 1 (explosive) materials handling and stowage.

(a) During the handling and stowage of Class 1 (explosive) materials, a responsible person shall be in constant attendance during the entire operation to direct the handling and stowage of Class 1 (explosive) materials, including the preparation of the holds. The responsible person must be aware of the hazards involved and the steps to be taken in an emergency, and must maintain sufficient contact with the master to ensure proper steps are taken in an emergency.

(b) Each person involved in the handling of Class 1 (explosive) materials on a vessel shall obey the orders of the responsible person.

Stowage

§ 176.112 Application of stowage provisions.

(a) The provisions of §§ 176.110(e), 176.118, and 176.120 of this subpart do not apply to Division 1.4 (Class C explosive) materials, compatibility group S. Such materials may be stowed together with all other Class 1 (explosive) materials except those of compatibility group A or L. They must be segregated from other hazardous materials in accordance with Table 176.83(b) of this part.

§ 176.116 General stowage conditions for Class 1 (explosive) materials.

(a) *Heat and sources of ignition:* (1) Class 1 (explosive) materials must be stowed in a cool part of the ship and must be kept as cool as practicable while on board. Stowage must be well away from all sources of heat, including steam pipes, heating coils, sparks, and flame.

(2) Except where Class 1 (explosive) materials are transported in closed freight containers or portable steel units, compartments containing Class 1 (explosive) materials must be provided with suitable means of arresting a flash. All ventilation shafts must be protected by single metallic gauze not less than 140 mesh per sq cm (30 x 30 mesh), or double gauze not less than 62 mesh per sq cm (20 x 20 mesh) at the end remote from the compartment. The screen must be positively attached to ensure secure fitting.

(3) Except where the consignment of Class 1 (explosive) materials consists only of explosive *articles*, the wearing of shoes or boots with unprotected metal nails, heels, or tips of any kind is prohibited.

(b) *Wetness:* (1) Spaces where Class 1 (explosive) materials are stowed below deck must be dry. In the event of the contents of packages being affected by water when on board immediate advice must be sought from the shippers; pending this advice handling of the packages must be avoided.

(2) Bilges and bilge sections must be examined and any residue of previous cargo removed before Class 1 materials (explosive) are loaded onto the vessel.

(c) *Security:* All compartments, magazines, and transport units containing Class 1 (explosive) materials must be locked or suitably secured in order to prevent unauthorized access.

(d) *Secure stowage:* Class 1 (explosive) materials must be securely stowed to prevent movement in transit; where necessary, precautions must be taken to prevent cargo sliding down between the frames at the ship's sides.

(e) *Separation from Accommodation Spaces and Machinery Spaces:*

Class 1 (explosive) materials must be stowed as far away as practicable from any accommodation spaces or any machinery space and may not be stowed directly above or below such a space. The requirements in paragraphs (e)(2) through (e)(4) of this section are minimum requirements in addition to the applicable requirements of 46 CFR chapter I. Where the requirements of this subpart are less stringent than those of 46 CFR chapter I, the 46 CFR chapter I requirements must be satisfied for ships to which they are applicable.

(2) There must be a permanent A Class steel bulkhead between any accommodation space and any compartment containing Class 1 (explosive) materials. Divisions 1.1 and 1.2 (Class A and B explosive) materials, 1.3 (Class B explosive) materials, or 1.5 (blasting agents) materials may not be stowed within 3 meters (10 feet) of this bulkhead; in the decks immediately above or below an accommodation space they must be stowed at least 3 meters (10 feet) from the line of this bulkhead projected vertically.

(3) There must be a permanent A Class steel bulkhead between a compartment containing Class 1 (explosive) materials and any machinery space. Class 1 (explosive) materials, except those in Division 1.4 (Class C explosive), may not be stowed within 3 meters (10 feet) of this bulkhead; and in the decks above or below the machinery space they must be stowed at least 3 meters (10 feet) from the line of this bulkhead projected vertically. In addition to this separation, there must be insulation to Class A60 standard as defined in 46 CFR 72.05-10(a)(1) if the machinery space is one of Category 'A' unless the only Class 1 (explosive) materials carried are in Division 1.4S (Class C explosive).

(4) Where Class 1 (explosive) materials are stowed away from bulkheads bounding any accommodation space or machinery space, the intervening space may be filled with cargo that is not readily combustible.

§ 176.118 Electrical requirements.

(a) Electrical equipment and cables installed in compartments in which Class 1 (explosive) materials are stowed which do not need to be energized during the voyage must be isolated from the supply so that no part of the circuit within the compartment is energized. The method of isolation may be by withdrawal of fuses, opening of switches or circuit breakers, or disconnection from bus bars. The means, or access to the means, of disconnection/reconnection must be secured by a locked padlock under the control of a responsible person.

(b) Electrical equipment and cables in a cargo space in which Class 1 (explosive) materials are stowed which are energized during the voyage for the safe operation of the ship must meet the requirements of Subchapter J of 46 CFR chapter I. Before Class 1 (explosive) materials are loaded aboard a vessel, all cables must be tested by a skilled person to ensure that they are safe and to determine satisfactory grouping.

insulation resistance, and continuity of the cable cores, metal sheathing or armoring.

(c) All Class 1 (explosive) materials must be stowed in a safe position relative to electrical equipment and cables. Additional physical protection must be provided where necessary to minimize possible damage to the electrical equipment or cables, especially during loading and unloading.

(d) Cable joints in the compartments must be enclosed in metal-clad junction boxes.

(e) All lighting equipment and cables must be of the fixed type and must meet the relevant inspection, test, and installation standards of 46 CFR chapter I, subchapter J.

§ 176.120 Lightning protection.

A lightning conductor grounded to the sea must be provided on any mast or similar structure unless effective electrical bonding is provided between the sea and the mast or structure from its extremity and throughout to the main body of the hull structure. Steel masts in ships of all welded construction comply with this requirement.

§ 176.122 Stowage arrangements under deck.

When stowed under deck, Class 1 (explosive) materials must be in conformance with one of the three stowage arrangements described in §§ 176.124 through 176.136 of this subpart.

§ 176.124 Ordinary stowage.

(a) Ordinary stowage is authorized for most explosive articles carried by vessels. The exceptions are those for which this subpart prescribes "magazine" or "special" stowage.

(b) Class 1 (explosive) materials requiring ordinary stowage must be stowed in accordance with § 176.116 of this subpart.

§ 176.126 Magazine stowage, general.

(a) Magazine stowage is sub-divided into three different types of magazines designated by the letters A, B, and C. A magazine may be a fixed structure in the vessel, a closed freight container, or a portable magazine unit. Freight containers, portable magazines, and vehicles must be properly secured in position. Magazines may be positioned in any part of the vessel conforming to the general stowage conditions for Class 1 (explosive) materials, except magazines which are fixed structures must be constructed in a location in which their doors, where fitted, are easily accessible.

(b) Magazine stowage is required for all explosive substances, except

"Explosive Substances, n.o.s." in compatibility groups G, L, or S. Magazine stowage type A is required for those substances which must be kept clear of steelwork. All other explosive substances must be given magazine stowage type B, except those in compatibility group A for which magazine stowage type C is prescribed.

(c) Magazine stowage type B is required for Charges, propelling, for cannon, UN0279, UN0414, and UN0242, and Charges, supplemental, explosive, UN0600, in compatibility group C or D; and magazine stowage type C is required for detonators and similar articles in divisions and compatibility group 1.1B and 1.2B (Class A and B explosive).

§ 176.130 Magazine stowage type A.

(a) In addition to protecting the Class 1 (explosive) materials and preventing unauthorized access, magazine stowage type A guards against friction between any spilled contents of packages and the vessel's sides and bulkheads.

(b) Class 1 (explosive) materials requiring magazine stowage type A must be stowed in a magazine which is tightly sheathed with wood on its inner sides and floor.

(c) When utilized as part of the magazine structure, the vessel's sides and bulkheads must be clean, free from rust or scale, and protected by battening or sweatboards spaced not more than 150 mm (6 inches) apart. All stanchions and other unprotected structural members must be similarly clean and battened. The underside of the deck above the magazine must be clean and free of rust and scale, but need not be battened.

(d) The top of the stow within the magazine must be at least 30 cm (12 inches) from the underside of the deck above.

(e) A type A magazine constructed in the square of a cargo space may not be loaded from the top.

(f) When other Class 1 (explosive) materials are stowed with Class 1 (explosive) materials for which magazine stowage type A is required, they or their packagings may have no exposed external parts made of ferrous metal or aluminum alloy.

§ 176.132 Magazine stowage type B.

(a) Magazine stowage type B is the same as magazine stowage type A as prescribed in § 176.130 of this subpart, except:

(1) The floor need not be tightly sheathed with wood but must be sparred or protected by wooden pallets, or dunnage; and

(2) Battening of the vessel's sides, bulkheads, and stanchions is not required.

(b) A compartment may be used for magazine stowage type B without a magazine structure provided that:

(1) The Class 1 (explosive) materials are stowed on wooden gratings, pallets, or dunnage, directly on the deck and not on other cargo;

(2) Other cargo stowed in the same compartment is not readily combustible material; and

(3) The position of the stowage is such that there is direct access to the hatchway.

(c) Class 1 (explosive) materials and other cargo in the same compartment must be secured to eliminate the possibility of significant movement. Where an entire deck is used as a magazine, the stowage must be so arranged that the Class 1 (explosive) materials stowed therein will be removed from the ship before working any cargo in any decks above or below the space in the same hatch.

§ 176.133 Magazine stowage type C.

The construction requirements for magazine stowage type C are the same as for magazine stowage Type B as prescribed in § 176.132 of this subpart, except that the magazine must be located as near as practicable to the centerline of the vessel and must not be closer to the vessel's side than a distance equal to one-eighth of the vessel's beam or 2.5 meters (8 feet) whichever is less.

§ 176.134 Vehicles.

Closed vehicles may be used to transport Class 1 (explosive) materials requiring magazine stowage by vessel if they meet the requirements of the appropriate magazine stowage type. See § 176.168 of this subpart for additional requirements relating to the transport of Class 1 (explosive) materials in vehicles.

§ 176.136 Special stowage.

(a) Special stowage is required for certain articles presenting both explosive and chemical hazards, such as smoke or lachrymatory (compatibility group G or H), toxic (compatibility group K), or substances and articles which present a special risk (compatibility group L). Class 1 (explosive) materials requiring special stowage must be stowed on deck unless such stowage is impracticable and the COTP authorizes special stowage below deck.

(b) Class 1 (explosive) materials for which special stowage is required must be stowed as far away as practicable from living, accommodation, and

working areas, and may not be overstowed. Steel portable magazines and freight containers in which such Class 1 (explosive) materials are stowed may not be located closer to the vessel's side than a distance equal to one-eighth of the vessel's beam or 2.5 meters (8 feet) whichever is less.

(c) Explosive articles having U.N. number 0015, 0016, 0018, 0019, 0301, or 0303 may be given ordinary stowage in a lower hold or 'tween deck. Other Class 1 (explosive) materials in compatibility groups G and H may be in open stowage out to the ship's side on a floodable lower hold or deep tank in such a position that other cargo cannot be contaminated by leakage; in all other cases such Class 1 (explosive) materials must be stowed in steel portable magazines or in freight containers. If a freight container is used for this purpose, the floor of the freight container must be leakproof; for example, an all-metal container may be used and a fillet of cement or other material worked across the bottom of the door opening.

(d) Class 1 (explosive) materials stowed in one compartment may not be of more than one compatibility group, except the COTP may allow Class 1 (explosive) materials of compatibility groups G and H in separate steel portable magazines to be stowed in the same compartment, not less than 3 meters (10 feet) apart.

(e) Class 1 (explosive) materials in compatibility groups K and L must be stowed in a steel portable magazine regardless of the stowage position in the vessel.

§ 176.137 Portable magazine.

(a) Each portable magazine used for the stowage of Class 1 (explosive) materials on board vessels must meet the following requirements:

(1) It must be weather tight, constructed of wood or metal lined with wood at least 2 cm (3/4 inch) thick, and with a capacity of no more than 3.1 cubic meters (110 cubic feet).

(2) All inner surfaces must be smooth and free of any protruding nails, screws or other projections.

(3) If constructed of wood, a portable magazine must be framed of nominal 5 cm X 10 cm (2 X 4 inch) lumber, and sheathed with nominal 2 cm (3/4 inch) thick boards or plywood.

(4) When constructed of metal, the metal must be not less than 3.2 mm (1/8 inch) thick.

(5) Runners, bearers, or skids must be provided to elevate the magazine at least 10 cm (4 inches) from the deck. Padeyes, ring bolts, or other suitable means must be provided for securing.

(6) If the portable magazine has a door or hinged cover, the door or cover must have a strong hasp and padlock or equally effective means of securing.

(7) The portable magazine must be marked on its top and four sides, in letters at least 8 cm (3 inches) high, as follows: "EXPLOSIVES—HANDLE CAREFULLY—KEEP LIGHTS AND FIRE AWAY"

(b) A portable magazine which meets the requirements for a type 2 or type 3 magazine under 27 CFR Part 55 subpart K may be used for the stowage of Class 1 (explosive) materials on board vessels.

(c) A portable magazine with a capacity exceeding 3.1 cubic meters (110 cubic feet) may be used for the stowage of Class 1 (explosive) materials under such construction, handling, and stowage requirements as the COTP approves.

§ 176.138 Deck stowage.

(a) Class 1 (explosive) materials stowed on deck must be carried as close to the vessel's centerline as practicable.

(b) Class 1 (explosive) materials may not be stowed within a horizontal distance of 6 meters (20 feet) from any fire, machinery exhaust, galley uptake, locker used for combustible stores, or other potential sources of ignition. They must be clear of walkways and cargo working areas, fire hydrants, steam pipes, and means of access, away from all other facilities necessary for the safe working of the vessel, and not less than a horizontal distance of 8 meters (26 feet) from the bridge, accommodation areas, and lifesaving appliances.

(c) Where vessels are fitted with container fastening arrangements, freight containers containing Class 1 (explosive) materials may be overstowed by containers of compatible Class 1 (explosive) materials or non-hazardous cargo. Where vessels are not fitted with container fastening arrangements, freight containers loaded with Class 1 (explosive) materials may be stowed only on the bottom tier of the stowage.

Segregation

§ 176.140 Segregation from other classes of hazardous materials.

(a) Class 1 (explosive) materials must be segregated from other packaged hazardous materials in accordance with § 176.83.

(b) Class 1 (explosive) must be segregated from bulk solid dangerous cargoes in accordance with the General Introduction to the IMDG Code. Notwithstanding § 176.83(b), ammonium nitrate and sodium nitrate may be stowed together with blasting explosives, except those containing

chlorates, provided the mixed stowage is treated as blasting explosives (see § 176.410(e)).

§ 176.142 Hazardous materials of extreme flammability.

(a) Except as allowed by paragraph (b) of this section, certain hazardous materials of extreme flammability may not be transported in a vessel carrying Class 1 (explosive) materials. This prohibition applies to the following hazardous materials:

Carbon disulfide.....	UN 1131	Class 3.1
Diethyl Zinc.....	UN 1366	Class 4.2
Dimethyl Zinc.....	UN 1370	Class 4.2
Magnesium Alkyls.....	UN 3053	Class 4.2
Nickel Carbonyl.....	UN 1259	Class 6.1
Pyrophoric Liquids,	UN 2845	Class 4.2
n.o.s.		

(b) The hazardous materials listed in paragraph (a) of this section may be transported in a vessel carrying the following Class 1 (explosive) materials as cargo:

(1) Division 1.4 (Class C explosive) materials, compatibility group S.

(2) Explosive articles having the following proper shipping names and identification numbers (see column (4) of the § 172.101 Table) if designed for lifesaving purposes and their total net explosive mass (weight) does not exceed 50 kg (112 lbs) per vessel:

- (i) ARTICLES, PYROTECHNIC: U.N. Nos. 0428, 0429, 0430, 0431.
- (ii) CARTRIDGES, FLASH: U.N. Nos. 0049; 0050.
- (iii) CARTRIDGES, SIGNAL: U.N. Nos. 0054, 0312.
- (iv) SIGNAL DEVICES, HAND: U.N. No. 0191.
- (v) SIGNALS, DISTRESS: U.N. Nos. 0194, 0195.
- (vi) SIGNALS, SMOKE: U.N. Nos. 0196, 0197, 0313.

(3) Class 1 (explosive) materials in compatibility groups C, D, and E if the total net explosive mass (weight) does not exceed 10 kg (22 pounds) per vessel.

(4) Explosive articles in compatibility group G, except fireworks and Class 1 (explosive) materials requiring special stowage if the total net explosive mass (weight) does not exceed 10 kg (22 pounds) per vessel.

(c) When a vessel carrying Class 1 (explosive) materials allowed under paragraph (b) of this section also carries a hazardous material of extreme flammability, that hazardous material must be stowed in a part of the vessel as remote as practicable from the Class 1 (explosive) materials.

§ 176.144 Segregation of Class 1 (explosive) materials.

(a) Class 1 (explosive) materials may be stowed within the same compartment, magazine, portable magazine, or transport unit as indicated in Table 176.144(a).

(b) Where Class 1 (explosive) materials of different compatibility groups are allowed to be stowed in the same compartment, magazine, portable magazine, or transport unit, the stowage arrangements must conform to the most stringent requirements for the entire load.

(c) Where a mixed load of Class 1 (explosive) materials of different hazard

divisions and/or stowage arrangements is carried within a compartment, magazine, or transport unit, the entire load must be treated as belonging to the hazard division having the greatest hazard (for example, if a load of Division 1.1 (Class A explosive) materials is mixed with Division 1.3 (Class B explosive) materials, the load would be treated as a Division 1.1 (Class A explosive) material as defined in § 173.50(b) of this subchapter and the stowage must conform to the most stringent requirements for the entire load.

(d) If some of the Class 1 (explosive) materials in a stowage mixture require

magazine stowage, Class 1 (explosive) materials requiring ordinary stowage may be stowed in the same magazine. When the magazine is used for substances requiring Type A stowage, the other Class 1 (explosive) materials stowed therein must have no exposed parts of ferrous metals or aluminum alloy, unless separated by a partition.

(e) *Segregation on deck:* When Class 1 (explosive) materials in different compatibility groups are carried on deck, they must be stored not less than 6 meters (20 feet) apart unless they are allowed under Table 176.144(a) to be stowed in the same compartment, magazine, or transport unit.

TABLE 176.144(a)—AUTHORIZED MIXED STOWAGE FOR EXPLOSIVES

[An "X" indicates that explosives in the two different compatibility groups reflected by the location of the "X" may not be stowed in the same or an adjacent compartment, portable magazine, or transport unit]

Compatibility groups	A	B	C	D	E	F	G	H	J	K	L	N	S
A	X												
B	X	X											
C	X	X	X										
D	X	X	X	X									
E	X	X	X	X	X								
F	X	X	X	X	X	X							
G	X	X	X	X	X	X	X						
H	X	X	X	X	X	X	X	X					
J	X	X	X	X	X	X	X	X	X				
K	X	X	X	X	X	X	X	X	X	X			
L	X	X	X	X	X	X	X	X	X	X	X		
N	X	X	X	X	X	X	X	X	X	X	X	X	
S	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:

- Explosive articles in compatibility group G, other than fireworks and those requiring special stowage, may be stowed with articles of compatibility groups C, D, and E, provided no explosive substances are carried in the same compartment, portable magazine or transport unit.
- Explosives in compatibility group L may only be stowed in the same compartment, magazine or transport unit with identical explosives within compatibility group L.

§ 176.145 Segregation in single hold vessels.

(a) On board a vessel having a single cargo hold, Class 1 (explosive) materials in hazard division/compatibility group 1.1B and 1.2B may be stowed in the same compartment with substances of compatibility group D, provided:

(1) The net explosive weight of the compatibility group B explosive does not exceed 50 kg (110 pounds); and

(2) The compatibility group B explosives are stowed in a steel portable magazine that is stowed at least 6 meters (20 feet) from the compatibility group D substances.

(b) Division/compatibility group 1.4B (Class C explosive) materials may be stowed in the same compartment with substances of compatibility group D provided the Class 1 (explosive) materials of different compatibility groups are separated by either a distance of at least 6 meters (20 feet) or by a steel partition.

§ 176.146 Segregation from non-hazardous materials.

(a) Except as required by paragraphs (b) and (c) of this section, Class 1 (explosive) materials need not be segregated from other cargo of a non-dangerous nature.

(b) Mail, baggage, and personal and household effects may not be stowed in the same compartment as, or in compartments immediately above or below, Class 1 (explosive) materials other than those in compatibility group S.

(c) Where Class 1 (explosive) materials are stowed against an intervening bulkhead, any mail on the other side of the bulkhead must be stowed away from it.

(d) *In order to avoid contamination:* (1) an explosive substance or article which has a secondary POISON hazard label must be stowed "separated from" all foodstuffs, except when such materials are stowed in separate closed transport units, the requirements for "away from" segregation apply.

(2) An explosive substance or article which has a secondary CORROSIVE hazard label must be stowed "away from" foodstuffs.

Precautions During Loading and Unloading**§ 176.148 Artificial lighting.**

Electric lights, except arc lights, are the only form of artificial lighting permitted when loading and unloading Class 1 (explosive) materials.

§ 176.150 Radio and radar.

(a) Except as provided in paragraph (b) of this section, when Class 1

(explosive) materials (other than explosive articles in Division 1.4 (Class C explosive) or any explosive substance) are loaded, unloaded, or handled, the responsible person must ensure that all sources of electromagnetic radiation such as radio and radar transmitters are deenergized by opening the main switches controlling the sources and tagging them to warn that the devices are to be energized until loading or unloading has ceased.

(b) During the loading or unloading of all explosive articles (except those in Division 1.4 (Class C explosive)), no radio or radar transmitter may be used within 50 meters (164 feet) of such articles except for VHF transmitters the power output of which does not exceed 25 watts and of which no part of the antenna system is within 2.0 meters (6.6 feet) of the Class 1 (explosive) materials.

(c) Explosive articles which are sensitive to electromagnetic radiation from external sources must be stowed at a safe distance from the vessel's radio cabin, receiving and transmitting apparatus radio antenna or lead-in, and radar installation, with due regard to the character of the vessel and the degree of screening-off of the explosive articles.

§ 176.154 Fueling (bunkering).

(a) Class 1 (explosive) materials, except those in compatibility group S, may not be loaded or unloaded when fueling (bunkering) is in progress except with the prior authorization of the COTP, and under conditions prescribed by that officer.

(b) Vessels containing Class 1 (explosive) materials may not be fueled (bunkered) with the hatches open unless authorized by the COTP.

§ 176.156 Defective packages.

(a) No leaking, broken, or otherwise defective package containing Class 1 (explosive) materials, including packages which have been adversely affected by moisture, may be accepted for shipment. The master or person in charge of a vessel on which there is a defective package containing Class 1 (explosive) materials must seek advice from the shipper concerning withdrawal, repair, or replacement. No repair of damaged or defective package containing Class 1 (explosive) materials may be performed on board a vessel.

(b) No Class 1 (explosive) material, which for any reason has deteriorated or undergone a change of condition that increases the hazard attendant upon its conveyance or handling, may be moved

in the port area, except as directed by the COTP.

(c) If any package of Class 1 (explosive) materials, or seal of a package of Class 1 (explosive) materials, appears to be damaged, that package must be set aside for examination and repair or otherwise disposed of as directed by the shipper.

(d) If any Class 1 (explosive) materials are spilled or released from a package, the responsible person must ensure that an appropriate emergency response is undertaken in accordance with the emergency response information required under § 172.602 of this subchapter. The master of the vessel must report each incident involving spillage or release of Class 1 (explosive) materials to the COTP as soon as practicable.

§ 176.160 Protection against weather.

Any person loading or unloading packages containing Class 1 (explosive) materials shall take adequate measures to prevent these packages from becoming wet.

§ 176.162 Security.

(a) A responsible person must be present at all times when the hatches of spaces containing Class 1 (explosive) materials are open. No unauthorized person may be permitted to access spaces in which Class 1 (explosive) materials are stowed. Magazines must be secured against unauthorized entry when loading has been completed, or when loading or unloading is stopped. Packages containing Class 1 (explosive) materials may not be opened on board ship.

§ 176.164 Fire precautions and firefighting.

(a) Matches, lighters, fire, and other ignition sources are prohibited on and near any vessel on which Class 1 (explosive) materials are being loaded, unloaded, or handled except in places designated by the master or the COTP.

(b) A fire hose of sufficient length to reach every part of the loading area with an effective stream of water must be laid and connected to the water main, ready for immediate use.

(c) No repair work may be carried out in a cargo space containing Class 1 (explosive) materials other than those of Division 1.4 (Class C explosive). No welding, burning, cutting, or riveting operations involving the use of fire, flame, spark, or arc-producing equipment may be conducted on board except in an emergency; and, if in port, with the consent of the COTP.

(d) Each compartment, including a closed vehicle deck space, which contains Class 1 (explosive) materials must be provided with a fixed fire extinguishing system. Each adjacent cargo compartment must be either protected by a fixed fire extinguishing installation or must be accessible for firefighting operations.

(e) A vessel must have a power-operated fire pump, which together with its source of power and sea connections must be located outside the machinery space, and two sets of breathing apparatus.

Passenger Vessels

§ 176.166 Transport of Class 1 (explosive) materials on passenger vessels.

(a) The following Class 1 (explosive) materials may be transported as cargo on passenger vessels:

(1) Division 1.4 (Class C explosive) materials, compatibility group S.

(2) Explosive articles designed for lifesaving purposes as identified in § 176.143(b)(2), if the total net explosive mass (weight) does not exceed 50 kg (110 pounds).

(3) Class 1 (explosive) materials in compatibility groups C, D, and E, if the

total net explosive mass (weight) does not exceed 10 kg (22 pounds) per vessel.

(4) Articles in compatibility group G other than those requiring special stowage, if the total net explosive mass (weight) does not exceed 10 kg (22 pounds) per vessel.

(5) Articles in compatibility group B, if the total net explosive mass (weight) does not exceed 5 kg (11 pounds).

(b) Class 1 (explosive) materials which may be carried on passenger vessels are identified in column (10) of the § 172.101 Table. They must be stowed in accordance with Table 176.166(b).

TABLE 176.166(b).—STOWAGE ARRANGEMENTS IN PASSENGER VESSELS

Class/division	Samples, explosive	Goods, N.O.S. class 1	Goods shipped under a specific proper shipping name												
			Compatibility group												
			A	B	C	D	E	F	G	H	J	K	L	N	S
1.1.....	d	d	c	e	e	e	e	c	e	-	c	-	c	-	-
1.2.....	d	d	-	e	e	e	e	c	e	c	c	c	c	-	-
1.3.....	d	d	-	-	e	e	-	c	e	c	c	c	c	-	-
1.4.....	d	d	-	b	b	b	b	c	b	-	-	-	-	-	a
1.5.....	d	d	-	-	-	e	-	-	-	-	-	-	-	-	-
1.6.....	d	d	-	-	-	-	-	-	-	-	-	-	-	e	-

- a—As for cargo ships, on deck or under deck.
- b—As for cargo ships, on deck or under deck, in portable magazines only.
- c—Prohibited.
- d—As specified by the Director, OHMT, or competent authority of the country in which the Class 1 (explosive) materials are loaded on the vessel.
- e—In containers or the like, on deck only.

(c) Notwithstanding the provisions of paragraph (a) of this section, a combination of the substances and articles listed in paragraphs (a)(1) through (a)(5) of this section may be transported on the same passenger vessel provided the total net explosive mass (weight) of the combination of Class 1 (explosive) materials carried does not exceed the smallest quantity specified for any one of the substances or articles in the combination.

Transport Units and Shipborne Barges

§ 176.168 Transport of Class 1 (explosive) materials in vehicle spaces.

(a) All transport vehicles and cargo must be properly secured.

(b) All transport vehicles used for the carriage of Class 1 (explosive) materials must be structurally serviceable as defined in § 176.172(a)(2) of this subpart.

(c) Vehicles used to transport Class 1 (explosive) materials must conform to the requirements in §§ 177.834 and 177.835 of this subchapter.

(d) Class 1 (explosive) materials which require special stowage must be transported in transport vehicles approved for the purpose by the Director, Office of Hazardous Materials Transportation; except Class 1 (explosive) materials in compatibility

group G or H may be carried in steel portable magazines or freight containers. Closed transport vehicles may be used as magazines; transport vehicles of other types may be used to transport Class 1 (explosive) materials which require ordinary stowage.

(e) Class 1 (explosive) materials of different compatibility groups may not be stowed in the same vehicle except as allowed in § 176.144 of this subpart.

(f) Vehicles containing different Class 1 (explosive) materials require no segregation from each other provided these materials may be carried together under the provisions of § 176.144 of this subpart. In all other instances, the vehicles must be "separated from" one another.

(g) All transport vehicles used for the transport of Class 1 (explosive) materials must have lashing arrangements for securing the vehicle on the ship and preventing the movement of the vehicle on its springs during the sea passage.

(h) Where a portable magazine or closed freight container is carried on a chassis, twist locks or other suitable securing arrangements must be provided and made secure.

§ 176.170 Transport of Class 1 (explosive) materials in freight containers.

(a) When Class 1 (explosive) materials are stowed in a freight container, the freight container may be regarded as a magazine but not as a separate compartment.

(b) Freight containers exceeding 6 meters (20 feet) in length may not carry more than 5000 kg (11,000 pounds) net explosive weight of explosive substances, except explosive substances in Division 1.4.

(c) Freight containers used to transport Class 1 (explosive) materials for which magazine stowage type A is required must be fitted with a close-boarded floor and must have a non-metallic lining.

(d) Class 1 (explosive) materials of different compatibility groups may not be stowed within the same freight container except as allowed in § 176.144 of this subpart.

(e) On vessels other than specially fitted container ships, freight containers containing Class 1 (explosive) materials must be stowed only in the lowest tier.

(f) Freight containers carrying different Class 1 (explosive) materials require no segregation from each other, provided the provisions of § 176.144 of this subpart allow the Class 1

(explosive) materials to be carried together in the same compartment. In all other instances, the containers must be "separated from" one another in accordance with 176.83(f) of this part.

(g) Freight containers carrying Class 1 (explosive) materials may not be handled on board a vessel with fork lift trucks unless approved by the COTP. This does not preclude the use of front loading trucks using side-frame lifting equipment.

§ 176.172 Structural serviceability of freight containers and vehicles carrying Class 1 (explosive) materials on ships.

(a) A freight container may not be offered for the carriage of Class 1 (explosive) materials unless the container is structurally serviceable as evidenced by a current CSC (International Convention for Safe Containers) approval plate and verified by a detailed visual examination as follows:

(1) Before a freight container or transport vehicle is packed with Class 1 (explosive) materials, it must be visually examined by the shipper to ensure it is structurally serviceable, free of any residue of previous cargo, and its interior walls and floors are free from protrusions.

(2) "Structurally serviceable" means the freight container or the vehicle cannot have major defects in its structural components, such as top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a freight container. Major defects include—

(i) Dents or bends in the structural members greater than 19 mm (¾ inch) in depth, regardless of length;

(ii) Cracks or breaks in structural members;

(iii) More than one splice or an improper splice (such as a lapped splice) in top or bottom end rails or door headers;

(iv) More than two splices in any one top or bottom side rail;

(v) Any splice in a door sill or corner post;

(vi) Door hinges and hardware that are seized, twisted, broken, missing, or otherwise inoperative;

(vii) Gaskets and seals that do not seal; or

(viii) For freight containers, any distortion of the overall configuration great enough to prevent proper alignment of handling equipment, mounting and securing chassis or vehicle, or insertion into ships' cells.

(3) In addition, deterioration in any component of the freight container or vehicle, regardless of the material of

construction, such as rusted-out metal in sidewalls or disintegrated fiberglass, is prohibited. Normal wear, however, including oxidation (rust), slight dents and scratches and other damage that does not affect serviceability, or the weather-tight integrity of the units, is not prohibited.

(b) As used in paragraph (a) of this section, "splice" means any repair of a freight container main structural member which replaces material, except complete replacement of the member.

(c) All shipments of Class 1 (explosive) materials except those in Division 1.4 (Class C explosive) must be accompanied by a statement, which may appear on the shipping paper, certifying that the freight container or the vehicle is structurally serviceable as defined in paragraph (a)(2) of this section.

§ 176.174 Transport of Class 1 (explosive) materials in shipborne barges.

(a) Fixed magazines may be built within a shipboard barge. Portable magazines and freight containers may be used as magazines with a barge.

(b) Shipborne barges may be used for the carriage of all types of Class 1 (explosive) materials. When carrying Class 1 (explosive) materials requiring special stowage, the following requirements apply:

(1) Class 1 (explosive) materials in compatibility group G or H must be stowed in steel portable magazines or freight containers.

(2) Class 1 (explosive) materials in compatibility group K or L must be stowed in steel portable magazines.

(c) Class 1 (explosive) materials of different compatibility groups may not be stowed within the same shipborne barge unless under § 176.144(b) of this subpart they are authorized to be stowed in the same compartment.

Handling Class 1 (Explosive) Materials in Port

§ 176.176 Signals.

(a) When Class 1 (explosive) materials are being loaded, handled, or unloaded on a vessel, the vessel must exhibit the following signals:

(1) By day, flag "B" (Bravo) of the international code of signals; and

(2) By night, an all-round fixed red light.

§ 176.178 Mooring lines.

(a) All lines used in mooring the vessel must be of sufficient strength, type, and number for the size of the vessel and local conditions.

(b) While the vessel is moored or anchored in a port area, towing wires of adequate size and length must be properly secured to mooring bits at the

bow and stern ready for immediate use with the towing eyes passed outboard and kept at about water level.

(c) The mooring arrangements must be such that the vessel can be released quickly in an emergency.

§ 176.180 Watchkeeping.

Whenever Class 1 (explosive) materials are on board a vessel in port, there must be sufficient crew on board to maintain a proper watch and to operate the propulsion and firefighting equipment in case of an emergency.

§ 176.182 Conditions for handling on board ship.

(a) *Weather conditions.* Class 1 (explosive) materials may not be handled in weather conditions which may seriously increase the hazards presented by the Class 1 (explosive) materials. During electrical storms, cargo operations must be halted and all hatches containing Class 1 (explosive) materials must be closed.

(b) *Darkness.* Class 1 (explosive) materials may not be handled on board a vessel during the hours of darkness unless prior consent has been obtained from the COTP.

(c) *Lighting.* The area where Class 1 (explosive) materials are handled or where preparations are being made to handle Class 1 (explosive) materials must be illuminated with lighting that is sufficient to perform the handling operation.

(d) *Protective equipment.* (1) A sufficient quantity of appropriate protective equipment must be provided for the personnel involved in handling Class 1 (explosive) materials.

(2) The protective equipment must provide adequate protection against the hazards specific to the Class 1 (explosive) materials handled.

(e) *Intoxicated persons.* No person under the influence of alcohol or drugs to such an extent that the person's judgment or behavior is impaired may participate in any operation involving the handling of Class 1 (explosive) materials. The master of the vessel must keep any such person clear of any areas where Class 1 (explosive) materials are being handled.

(f) *Smoking.* (1) Smoking is prohibited on the vessel while Class 1 (explosive) materials are being handled or stowed except in places designated by the master of the vessel.

(2) Conspicuous notices prohibiting smoking must be posted and clearly visible at all locations where Class 1 (explosive) materials are handled or stored.

(g) All hatches and cargo ports opening into a compartment in which Class 1 (explosive) materials are stowed must be kept closed except during loading and unloading of the compartment. After loading, hatches must be securely closed.

§ 176.184 Class 1 (explosive) materials of Compatibility Group L.

Class 1 (explosive) materials in compatibility group L may not be handled in a port area without the special permission of, and subject to any special precautions required by, the COTP.

§ 176.190 Departure of vessel.

When loading of Class 1 (explosive) materials is completed, the vessel must depart from the port area as soon as is reasonably practicable.

§ 176.192 Cargo handling equipment for freight containers carrying Class 1 (explosive) materials.

(a) Except in an emergency, only cargo handling equipment that has been specifically designed or modified for the handling of freight containers may be used to load, unload, or handle freight containers containing Division 1.1 or 1.2 (Class A and B explosive) materials.

(b) The gross weight of a freight container containing Class 1 (explosive) materials may not exceed the safe working load of the cargo handling equipment by which it is handled.

Magazine Vessels

§ 176.194 Stowage of Class 1 (explosive) materials on magazine vessels.

(a) *General.* The requirements of this section are applicable to magazine vessels and are in addition to any other requirements in this subchapter.

(b) *Type vessel authorized.* A single deck vessel with or without a house on deck is the only type vessel that may be used as a magazine vessel. A magazine vessel may not be moved while Class 1 (explosive) materials are on board.

(c) *Location of explosives.* Division 1.1, 1.2, or 1.3 (Class A and B explosive) materials, in excess of 2268 kg (5000 pounds), stored in any magazine vessel must be stowed below deck. No Class 1 (explosive) materials may be stowed on deck unless the vessel is fitted with a deck house having a stowage area which meets the requirements in this subpart for the stowage of Class 1 (explosive) materials. Detonators, Division 1.1 (Class A explosive), and detonating primers, Division 1.1 (Class A explosive), may not be stored on the same magazine vessel with other Division 1.1, 1.2, and 1.3 (Class A or B explosive) materials.

(d) *Class 1 (explosive) materials storage spaces.* Any compartment on a magazine vessel used for the stowage of Class 1 (explosive) materials must be completely ceiled with wood so as to provide a smooth interior surface. Each metal stanchion in the compartment must be boxed in the same manner. An overhead ceiling is not required when the overdeck is weather tight. All nail and bolt heads must be countersunk and any exposed metal must be covered with wood.

(e) *Initiating explosives, detonators and boosters with detonators.* No explosive substance in Division 1.1, compatibility group A may be stowed in the same compartment with any other Class 1 (explosive) materials when there is any explosive substances in Division 1.1 or 1.2 (Class A explosive) on the same magazine vessel. Detonators and detonating primers must be stowed at least 8 meters (26 feet) from any bulkhead forming a boundary of a compartment containing any other Class 1 (explosive) materials.

(f) *Dry storage spaces.* A magazine vessel having a dry storage space capable of being used for any purpose whatsoever must have a cofferdam at least 61 cm (24 inches) wide fitted between the dry storage space and each adjacent compartment containing Class 1 (explosive) materials. The cofferdam must be constructed of wood or steel, formed by two tight athwartship bulkheads extending from the skin of the vessel to the overdeck. If the cofferdam extends to the weather deck, a watertight hatch must be fitted in the deck to provide access to the cofferdam.

(g) *Lighting.* Non-sparking, battery-powered, self-contained electric lanterns or non-sparking hand flashlights are the only means of artificial light authorized.

(h) *Living quarters.* Living quarters must be fitted on the inside with a non-combustible material approved by the Commandant, USCG. Bracketed ship's lamps are the only lighting fixtures authorized to be used in the living quarters. Any stove used for heating or cooking must be securely fastened and may not be mounted closer than 15 cm (6 inches) to the deck or sides of the house. Any smoke pipe for the stove which passes through the roof of the house must be kept at least 8 cm (3 inches) away from any woodwork. Each smoke pipe must be protected by a layer of non-combustible material approved by the Commandant, USCG, an air space of at least 2.54 cm (1 inch), and a metal collar of at least 1.5 mm (16 gauge) sheet secured only on the weather side of the roof. There may be no opening from any living quarters into any stowage compartment.

(i) *Storage of other hazardous materials.* Magazine vessels having Class 1 (explosive) materials on board may not be used for the storage of any other hazardous material.

(j) *Magazine vessel's stores.* Hazardous materials used as stores on board any magazine vessel must comply with the requirements of 46 CFR part 147.

(k) *Matches.* Safety matches requiring a prepared surface for ignition are the only type of matches authorized to be possessed or used on board a magazine vessel. They must be kept in a metal box or can with a metal cover and stored in the custodian's living quarters.

(l) *Firearms.* Firearms and ammunition (other than cargo) are not permitted on board a magazine vessel.

(m) *Fire extinguishing equipment.* No Class 1 (explosive) materials may be loaded or stowed in, unloaded from, or handled on any magazine vessel unless four fire extinguishers that meet the requirements for Type A Size II or Type B Size III in 46 CFR subpart 95.50 are near and accessible to the magazines.

(n) *Supervision.* A magazine vessel containing Class 1 (explosive) materials must be continuously attended by a custodian employed for that purpose by the vessel's owner.

(o) *Unauthorized persons on magazine vessels.* The custodian of a magazine vessel shall prevent unauthorized persons from coming on board unless it is necessary to abate a hazard to human life or a substantial hazard to property.

(p) *Repacking of Class 1 (explosive) materials on board.* No Class 1 (explosive) materials may be repacked on board a magazine vessel. Broken or damaged packages must be handled in accordance with the requirements of § 176.156 of this subpart. Packages requiring an emergency response must be handled in accordance with the emergency response information required under § 172.602 of this subchapter.

(q) *Work boat.* Each magazine vessel must be equipped with a work boat.

(r) *Life preservers.* One approved personal flotation device must be available for each person employed on a magazine vessel.

(s) *Fenders.* Each magazine vessel must be fitted with fenders in sufficient number and size to prevent any vessel tying up alongside from coming in contact with the hull.

35. Subpart H would be revised to read as follows:

Subpart H—Detailed Requirements for Class 2 (Compressed Gas) Materials**§ 176.200 General stowage requirements.**

(a) Each package of Class 2 (compressed gas) material being transported by vessel must be prevented from making direct contact with the vessel's deck, side, or bulwark by dunnage, shoring, or other effective means.

(b) When cylinders of Class 2 (compressed gas) materials being transported by vessel are stowed in a horizontal position, each tier must be stowed in the cantlines of the tier below it, and the valves on cylinders in adjacent tiers must be at alternate ends of the stow. Each tier may be stepped back and the ends alternated in order to clear the flange. Lashing must be provided to prevent any movement.

(c) When cylinders of Class 2 (compressed gas) materials being transported by vessel are stowed in a vertical position they must be stowed upright in a block and cribbed or boxed in with suitable dunnage. The box or crib must be dunnaged at least 10 cm (4 inches) off any metal deck. The cylinders in the box or crib must be braced to prevent any movement. The box or crib must be securely chocked and lashed to prevent any movement.

(d) Any package containing Division 2.3 (poison gas) materials must be stowed separate from all foodstuffs.

(e) Class 2 (compressed gas) materials may not be stowed "on deck" over a hold or compartment containing coal.

(f) Class 2 (compressed gas) material must be kept as cool as practicable and be stowed away from all sources of heat and ignition.

§ 176.205 Under deck stowage requirements.

(a) When a Class 2 (compressed gas) material is stowed below deck, it must be stowed in a mechanically ventilated cargo space capable of being ventilated with no source of artificial heat and clear of living quarters. No bulkhead or deck of that hold or compartment may be a common boundary with any boiler room, engine room, coal bunker, galley or boiler room uptake.

(b) When Division 2.1 (flammable gas) materials are stowed below deck, it must be stowed in a hold or compartment which complies with paragraph (a) of this section and the following requirements:

(1) Each hold or compartment must be ventilated.

(2) Each hold or compartment must be equipped with an overhead water sprinkler system or fixed fire extinguishing system.

(3) Each electrical power line in the hold or compartment must be protected by a strong metal covering to prevent crushing by cargo being stowed against it.

(4) Except when fitted with electrical fixtures of the explosion-proof type, each electrical circuit serving the hold or compartment must be disconnected from all sources of power. No circuit may be energized until the Division 2.1 (flammable gas) cargo and any vapors have been removed from the hold or compartment. Explosion-proof portable lighting may be used if the source of power is from electrical outlets outside the hold or compartment and above the weather deck.

(5) Any opening in a common bulkhead of an adjacent hold or compartment must be securely closed off and made gas-tight, unless the adjacent hold or compartment is also used for the stowage of Division 2.1 (flammable gas) materials.

(6) Full and efficient hatch covers must be used. Tarpaulins, if fitted, must be protected by dunnaging before overstuffing with any cargo. Each tarpaulin must be in one piece and free of rents, tears, and holes.

(7) A fire screen must be fitted at the weather end of each vent duct leading from the hold or compartment. The fire screen must completely cover the open area. It must consist of two layers of fine brass wire screen at least 50 × 50 cm (20 × 20 inches) mesh or finer, spaced not less than 1 cm (½ inch) or more than 4 cm (1½ inches) apart. The screen may be removable if means for securing it in place when in service are provided.

(8) The hold or compartment may not be fitted with any gooseneck type vent trunk head.

(9) All electrical apparatus located in the hold or compartment must have a positive means for disconnecting it from power outside the hold or compartment containing any Division 2.1 (flammable gas) materials.

§ 176.210 On deck stowage requirements.

Cylinders of Class 2 (compressed gas) materials being transported by vessel must be protected from radiant heat which includes the direct rays of the sun by structural erections or awnings. A tarpaulin covering the cylinders is not acceptable if it comes in contact with them.

§ 176.220 Smoking or open flame and posting of warning signs.

(a) Smoking or the use of open flame is prohibited in any hold or compartment containing a Division 2.1 (flammable gas) material, near any Division 2.1 (flammable gas) material

stowed on deck, or near any ventilator leading to a hold containing this material.

(b) A sign carrying the legend:

FLAMMABLE VAPORS
KEEP LIGHTS AND FIRE AWAY
NO SMOKING

must be conspicuously posted at each approach to an "on deck" Division 2.1 (flammable gas) material stowage area and near each cargo hold ventilator leading to a hold containing this material. The sign must be painted on a white background using red letters. The letters may not be less than 8 cm (3 inches) high.

§ 176.225 Stowage of chlorine.

Chlorine (UN1017) must be stowed separate from copper or brass leaf sheets and finely divided organic material.

§ 176.230 Stowage of Division 2.1 (flammable gases) materials.

Division 2.1 (flammable gases) materials transported in Specifications 106A and 110A multi-unit car tanks must be stowed on deck only, and must be shaded from radiant heat.

36. Subpart I would be revised to read as follows:

Subpart I—Detailed Requirements for Class 3 (Flammable and Combustible Liquid) Materials**§ 176.305 General stowage requirements.**

(a) Flammable and combustible liquids must be kept as cool as reasonably practicable and be stowed away from all sources of heat and ignition.

(b) Except as otherwise provided in § 176.76(g), a package containing a flammable liquid and equipped with a vent or safety relief device must be stowed "on deck" only.

(c) The following requirements apply to each hold or compartment in which flammable and combustible liquids are being transported:

(1) The hold or compartment must be ventilated except that the stowage of non-bulk packages of combustible liquids (see § 171.8 definitions) may be in non-ventilated holds.

(2) Stowage of flammable or combustible liquids within 6 meters (20 feet) of a bulkhead which forms a boundary or deck of a boiler room, engine room, coal bunker, galley, or boiler room uptake is not permitted. If the amount of the liquid to be stowed in a hold will not permit compliance with

the requirement for a 6 meter (20 foot) separation, less separation distance is authorized if at least one of the following conditions exists:

(i) The bulkhead or deck is covered with at least 8 cm (3 inches) of insulation on the entire area subject to heat:

(ii) A temporary wooden bulkhead at least 5 cm (2 inches) thick is constructed in the hold at least 8 cm (3 inches) off an engine room or 15 cm (6 inches) off a boiler room bulkhead, covering the entire area of the bulkhead that is subject to heat and the space between the permanent bulkhead and the temporary wooden bulkhead is filled with mineral wool or equivalent bulk noncombustible insulating material or

(iii) A temporary wooden bulkhead is constructed of at least 2.5 cm (1 inch) thick tongue and groove sheathing, located 1 meter (3 feet) from the boiler room or engine room bulkhead, and filled with sand to a height of 2 meters (6 feet) above the tank top, or, if the cargo compartment is located between decks, 1 meter (3 feet) of sand.

(3) Combustible liquids may not be stowed in a hold within 6 meters (20 feet) of a common bulkhead with the engine room unless the means of vessel propulsion is internal combustion engines.

(4) Each cargo opening in a bulkhead of an adjacent hold must be securely closed off and made gas-tight, unless the adjacent hold is also used for the stowage of a flammable or combustible liquid.

(d) In addition to the requirements specified in paragraph (b) of this section, the following requirements apply to each hold or compartment in which a flammable liquid is transported:

(1) Full and effective hatch covers must be used. Tarpaulins, if fitted, must be protected by dunnaging before overstowing with any cargo. Each tarpaulin must be in one piece and free of rents, tears, and holes;

(2) If flammable liquids in excess of 1016 kg (2240 pounds) are stowed under deck in any one hold or compartment, a fire screen must be fitted at the weather end of each vent duct leading from that hold or compartment. The fire screen must completely cover the open area. It must consist of two layers of fine brass wire screen at least 20×20 mesh or finer spaced not less than 1 cm (½ inch) or more than 1 cm (½ inch) apart. The screen may be removable only if means for securing it in place when in service are provided;

(3) Each electrical power line in the hold or compartment must be protected by a strong metal covering to prevent

crushing by cargo being stowed against it;

(4) Except when fitted with explosion-proof type electrical fixtures, each electrical circuit serving the hold or compartment must be disconnected from all sources of power from a point outside the hold or compartment containing flammable liquids. No circuit may be energized until the flammable liquids and any vapors have been removed from the hold or compartment. Explosion-proof type portable lighting may be used if the source of power is from electrical outlets outside the hold or compartment and above the weather deck; and

(5) Flammable liquids in excess of 1016 kg (2240 pounds), may not be transported in any hold or compartment that is fitted with a gooseneck type of vent head.

(e) On a passenger vessel, each hold or compartment used to transport flammable liquids must be equipped with an overhead water sprinkler system or fixed fire-extinguishing system.

(f) On a passenger vessel, each hold or compartment used to transport flammable liquids under a passenger space must have an overdeck of an A-60 type construction (see 46 CFR 72.05-10(c)(1)) or equivalent or have its underside covered with at least 8 cm (3 inches) of noncombustible insulation.

(g) No flammable liquid in a drum or wooden case, having inside packagings of more than one liter (one quart) capacity each, may be stowed as a beam filler. A wooden barrel, a wooden box or a fiberboard box, with any flammable liquid material in inside packagings of not more than one liter (one quart) capacity each, may not be stowed as a beam filler unless it is possible to stow and observe any "THIS SIDE UP" marking.

§ 176.315 Fire protection requirements.

(a) For each 79.800 liters (21,000 U.S. gallons) or part thereof of any flammable and combustible liquids being transported on board a vessel in a portable tank, rail tank car, or a motor vehicle cargo tank, there must be provided at least one B-V semiportable foam (152 liter/40 gallon capacity) (see 46 CFR 95.50), dry chemical (100 lbs./45 kg minimum capacity) or equivalent fire extinguisher, or a fire hose fitted with an approved portable mechanical foam nozzle with pick-up tube and two 19 liter (5 gallon) cans of foam liquid concentrate. Each foam system must be suitable for use with each flammable or combustible liquid it is intended to cover. Each fire extinguisher must be

accessible to the tank it is intended to cover.

(b) The fire hose at each fire hydrant in the vicinity of flammable and combustible liquids stowage areas must be fitted with an approved combination spray nozzle.

(c) The pressure must be maintained in the vessel's fire mains during the loading and unloading of the flammable and combustible liquids.

(d) Two 7 kg (15 pound) capacity hand portable dry chemical or two portable 10 liter (2½ gallon) foam-type extinguishers must be accessible to any packaged flammable or combustible liquid and suitable for use with the lading.

(e) The requirements of this section do not apply to portable tanks and their contents authorized under 46 CFR part 93 or 46 CFR part 64.

§ 176.320 Use of hand flashlights.

Each hand flashlight used on deck near or in any hold or compartment containing a flammable liquid, must be of the nonsparking type.

§ 176.325 Smoking or open flame and posting of warning signs.

(a) Smoking or the use of open flame is prohibited in any hold or compartment containing a flammable or combustible liquid, near any flammable or combustible liquid stowed on deck, or near any ventilator leading to a hold containing such material.

(b) A sign carrying the legend:

FLAMMABLE VAPORS

KEEP LIGHTS AND FIRE AWAY
NO SMOKING

must be conspicuously posted at each approach to a flammable or combustible liquid stowed "on deck" and near each cargo hold ventilator leading to a hold or compartment containing this material. This sign must be painted on a white background using red letters. The letters may not be less than 8 cm (3 inches) high.

§ 176.331 Transportation of flammable liquids with foodstuffs.

Each package containing a flammable liquid which bears a POISON label must be stowed separate from foodstuffs. Each package containing a flammable liquid which bears a CORROSIVE or KEEP AWAY FROM FOOD label must be stowed away from foodstuffs.

§ 176.340 Combustible liquids in portable tanks.

(a) Combustible liquids, having a flashpoint of 37.8 °C (100 °F) or higher,

may be transported by vessel only in one of the portable tanks as specified below:

- (1) Portable tanks authorized in § 173.241 of this subchapter.
- (2) In nonspecification portable tanks, subject to the following conditions:
 - (i) Each portable tank must conform to §§ 173.251 and 173.253 of this subchapter, except as otherwise provided in this paragraph;
 - (ii) The rated capacity of the tank may not exceed 4542 liters (1,200 gallons), and the rated gross weight may not exceed 13,608 kg (30,000 pounds);
 - (iii) The vibration test in § 173.253-5 need not be performed;
 - (iv) When the total surface area of the tank exceeds 14.9 square meters (160 square feet), the total emergency venting capacity must be determined in accordance with Table III in § 173.341-4 of this subchapter;
 - (v) In place of a specification identification marking required by § 173.251-7 of this subchapter, the tank must be marked, on two sides in letters at least 5 cm (2 inches) high on contrasting background: "FOR COMBUSTIBLE LIQUIDS ONLY" and "49 CFR 173.340". This latter marking is the certification of the person offering the combustible liquid materials for transportation that the portable tank conforms to this paragraph;
 - (vi) Each tank must be made of steel;
 - (vii) The design pressure of the tank must be not less than 62 KPa (9 psig);
 - (viii) No pressure relief device may open at less than 34.4 KPa (5 psig);
 - (ix) Each tank must be retested and marked at least once every 2 years in accordance with the requirements applicable to a DOT specification 57 portable tank in § 173.32 (e)(2), (e)(3), and (e)(4) of this subchapter; and
 - (x) Each tank must conform to the provisions of § 173.24 of this subchapter and paragraphs (g), (h), (i), and (k) of § 173.32 of this subchapter.

(3) Portable tanks approved by the Commandant, USCG (G-MTH).

37. Subpart J would be revised to read as follows:

Subpart J—Detailed Requirements for Class 4 (Flammable Solids), Class 5 (Oxidizers and Organic Peroxides), and Division 1.5 (Blasting Agents) Materials

§ 176.400 Stowage of Division 1.5 (blasting agents) and Class 5 (oxidizers and organic peroxides) materials.

(a) Class 4 (flammable solid) material and Division 5.2 (organic peroxide) material must be kept as cool as reasonably practicable and be stowed away from all sources of heat and ignition.

(b) Division 5.2 (organic peroxide) material must be stowed away from living quarters or access to them. Division 5.2 (organic peroxide) material not requiring temperature control should be protected from radiant heat which includes direct rays of the sun and stowed in a cool, well-ventilated area.

(c) No Division 1.5 (blasting agents) or Class 5 (oxidizers and organic peroxides) materials being transported by vessel may be stowed in the same hold or compartment with any readily combustible material such as a combustible liquid, a textile product, or with a finely divided substance, such as an organic powder.

(d) No Division 1.5 (blasting agents) or Class 5 (oxidizers and organic peroxides) being transported by vessel may be stowed in a hold or compartment containing sulfur in bulk, or in any hold or compartment above, below, or adjacent to one containing sulfur in bulk.

§ 176.405 Stowage of charcoal.

(a) Before stowing charcoal Division 4.2 (flammable solid), UN1361, NA1361, or UN1362 on a vessel for transportation, the hold or compartment in which it is to be stowed must be swept as clean as practicable. All residue of any former cargo, including a petroleum product, a vegetable or animal oil, nitrate, or sulfur, must be removed.

(b) Charcoal packed in bags and offered for transportation on board a vessel in a quantity over 1016 kg (2240 pounds) must be loaded so that the bags are laid horizontally and stacked with space for efficient air circulation. If the bags are not compactly filled and closed to avoid free space within, vertical and horizontal dunnage strips must be laid between the bags. Space for ventilating must be maintained near bulkheads, the shell of the vessel, the deck, and the overhead. No more than 40.6 metric tons (40 long tons) of charcoal may be stowed in a hold or compartment when other stowage space is available. If the unavailability of hold or compartment space requires the stowage of a larger amount, the arrangement of the stow for ventilation must be adjusted to ensure a sufficient venting effect.

(c) Any loose material from bags broken during loading must be removed. Broken bags may be repacked or have the closures repaired and the repaired bags restowed.

(d) Charcoal "screenings" packed in bags must be stowed to provide spaces for air circulation between tiers regardless of the quantity stowed.

§ 176.410 Division 1.5 (blasting agents) materials, ammonium nitrate and ammonium nitrate mixtures.

(a) This section prescribes requirements to be observed with respect to transportation of each of the following hazardous materials by vessel:

(1) Explosives, blasting, type E, and Explosives, blasting, type B, Division 1.5 (blasting agent) compatibility group D, UN0331 and UN0332.

(2) Ammonium nitrate fertilizer, Division 1.1 (Class A explosive) compatibility group D, UN0222 or UN0223.

(3) Ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN1942.

(4) Ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2068.

(5) Ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2067.

(6) Ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2089 or UN2072.

(7) Ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2070.

(b) This section does not apply to Ammonium nitrate fertilizer, Class 9 (miscellaneous hazardous materials), UN2071 or to any non-acidic ammonium nitrate mixed fertilizer containing 13 percent or less ammonium nitrate, less than 5 percent organic material, and no other oxidizing material, and which does not meet the criteria for any other hazard set forth in part 173 of this subchapter.

(c) When Division 1.5 (blasting agents) compatibility group D materials, ammonium nitrate, or any of the ammonium nitrate fertilizers listed in paragraph (a) of this section are transported by vessel:

(1) They must be stowed well away from any steam pipe, electric circuit, or other source of heat;

(2) Smoking may not be permitted except in designated areas away from the material and "No-Smoking" signs must be posted in accordance with § 176.60;

(3) Fire hoses must be connected, laid out, and tested before loading or unloading commences; and

(4) A fire watch must be posted in the hold or compartment where the material is being loaded or unloaded.

(d) When any of the hazardous materials listed in paragraph (a) of this section is transported in bags by vessel:

(1) The requirements specified in paragraph (c) of this section must be complied with;

(2) The temperature of the bagged material may not exceed 54 °C (130 °F);

(3) Minimum dunnage and sweatboards must be used to prevent any friction or abrasion of bags, and to

allow for the circulation of air and access of water in the event of fire;

(4) The bags must be stowed from side to side, out to the sweatboards;

(5) A space of 46 cm (18 inches) must be provided between any transverse bulkhead and the bags;

(6) The bags must be stowed so as to provide a 46 cm (18 inch) athwartship trench along the centerline of the compartment, continuous from top to bottom;

(7) The bags must be stowed so as to provide a 46 cm (18 inch) amidship trench running fore and aft from bulkhead to bulkhead;

(8) The bags may not be stowed less than 46 cm (18 inches) from any overhead deck beam;

(9) The bags must be stowed so as to provide vent flues 36 cm (14 inches) square at each corner of the hatch continuous from top to bottom;

(10) Trenching must be accomplished by alternating the direction of the bags in each tier (bulkheading); and

(11) The bags must be blocked and braced as necessary to prevent shifting of the bagged cargo adjacent to any trench area.

(e) Notwithstanding § 176.83(b) of this part, ammonium nitrate and ammonium nitrate fertilizers classed as Division 5.1 (oxidizers) materials, may be stowed in the same hold, compartment, magazine, or freight container with Class 1 materials (explosive), except those containing chlorates, in accordance with the segregation and separation requirements of § 176.144 of this Part applying to Explosives, blasting, type B, and Explosives, blasting, type E, Division 1.5 compatibility group D.

(f) No mixture containing ammonium nitrate and any ingredient which would accelerate the decomposition of ammonium nitrate under conditions incident to transportation may be transported by vessel.

§ 176.415 Permit requirements for Division 1.5 (blasting agents), ammonium nitrates, and certain ammonium nitrate fertilizers.

(a) Except as provided in paragraph (b) of this section, before any of the following material is loaded on or unloaded from a vessel at any waterfront facility, the carrier concerned must obtain written permission from the nearest COTP:

(1) Ammonium nitrate fertilizer, Division 1.1 (Class A explosive) compatibility group D, UN0222 or UN0223.

(2) Ammonium nitrate UN1942, ammonium nitrate fertilizers containing more than 60 percent ammonium nitrate, ammonium nitrate fertilizer, Division 5.1 (oxidizer) UN2070, or Division 1.5

(blasting agent) compatibility group D materials packaged in a paper bag, burlap bag, or other nonrigid combustible packaging, or any rigid container with combustible inside packagings.

(3) Any other ammonium nitrate or ammonium nitrate fertilizer not listed in § 176.410(a) or (b) of this subpart except ammonium nitrate fertilizer Class 9 (miscellaneous hazardous materials) material, UN2071.

(b) Any of the following may be loaded on or unloaded from a vessel at any waterfront facility without a permit:

(1) Ammonium nitrate fertilizer, Division 5.1 (oxidizer) UN1942, in a rigid container with noncombustible inside packaging.

(2) Ammonium nitrate fertilizer, Division 5.1 (oxidizer) UN2067, if the nearest COTP is notified at least 24 hours in advance of any loading or unloading or unloading in excess of 454 kg (1,000 pounds).

(3) Ammonium nitrate fertilizer, n.o.s., Division 5.1 (oxidizer) UN2072, containing 40 percent or more fine calcium carbonate or dolomite.

(4) Non-acidic ammonium nitrate fertilizer, n.o.s., Division 5.1 (oxidizer) UN2072, containing less than 5 percent organic material and 60 percent or less ammonium nitrate.

(5) Division 1.5 (blasting agents) compatibility group D materials in a rigid container with non-combustible inside packaging.

(6) Ammonium nitrate fertilizers, Class 9 (miscellaneous hazardous materials), UN2071.

(c) Before a permit may be issued, the following requirements must be met in addition to any others the COTP may require:

(1) If the material is ammonium nitrate fertilizer Division 1.1 (Class A explosive) compatibility group D, UN0222 or UN0223; ammonium nitrate fertilizer Division 5.1 (oxidizer), UN2070; or Explosives, blasting, type E, Division 1.5 (blasting agents) compatibility group D, UN0332 in combustible packaging or in a rigid container with combustible inside packaging, it must be loaded or unloaded at a facility remote from populous areas or high value or high hazard industrial facilities so that in the event of fire or explosion loss of lives and property may be minimized;

(2) If the material is ammonium nitrate fertilizer Division 1.1 (Class A explosive) compatibility group D, UN0222 or UN0223 in rigid metal drums with non-combustible inside packagings; an ammonium nitrate fertilizer, Division 5.1 (oxidizer) UN2070, containing more than 60 percent ammonium nitrate; or ammonium nitrate fertilizer, Division 5.1

(oxidizer), UN2070 in rigid containers with combustible inside packagings, it must be loaded or unloaded at a facility removed from congested areas or high value or high hazard industrial facilities;

(3) Each facility at which the material is to be loaded or unloaded must conform with the requirements of the port security and local regulations and must have an abundance of water readily available for fire fighting; and

(4) Each facility at which the material is to be loaded or unloaded must be located so that each vessel to be loaded or unloaded has an unrestricted passage to open water. Each vessel must be moored bow to seaward, and must be maintained in a mobile status during loading, unloading, or handling operations by the presence of tugs or the readiness of engines. Each vessel must have two wire towing hawsers, each having an eye splice, lowered to the water's edge, one at the bow and the other at the stern.

(5) If the material is ammonium nitrate fertilizer, Division 1.1 (Class A explosive) compatibility group D, UN0222 or UN0223; ammonium nitrate fertilizer, Division 5.1 (oxidizer) UN2070; an ammonium nitrate fertilizer, Division 5.1 (oxidizer) containing more than 60 percent ammonium nitrate; or Division 1.5 (blasting agents) compatibility group D materials in non-rigid combustible packaging and loaded in freight containers or transport vehicles, it may be loaded or unloaded at a non-isolated facility provided that facility meets the approval of the COTP.

§ 176.419 Class 4 (flammable solids) or Class 5 (oxidizers and organic peroxides) materials transported with foodstuffs.

Each package containing Class 4 (flammable solids) or Class 5 (oxidizers and organic peroxides) materials, bearing a POISON label and being transported on a vessel must be stowed separate from foodstuffs. Each package containing Class 4 (flammable solids) or Class 5 (oxidizers or organic peroxides) materials which bears a CORROSIVE or KEEP AWAY FROM FOOD label must be stowed away from foodstuffs.

38. Subpart L would be revised to read as follows:

Subpart L—Detailed Requirements for Division 2.3 (Poison A) and Division 6.1 (Poison B) Materials

§ 176.600 General stowage requirement.

(a) Each package required to have a POISON GAS or POISON label thereon being transported on a vessel must be stowed clear of living quarters and any ventilation ducts serving living quarters and separate from foodstuffs.

(b) Each package required to have both a POISON GAS label and a FLAMMABLE GAS label thereon must be segregated as a Division 2.1 (flammable gas) material.

(c) Each package required to have a KEEP AWAY FROM FOOD label must be stowed away from foodstuffs.

(d) Each package of Division 2.3 (Poison A) material or Division 6.1 (Poison B) material which also bears a FLAMMABLE LIQUID or FLAMMABLE GAS label must be stowed in a mechanically ventilated space, kept as cool as reasonably practicable, and be stowed away from all sources of heat and ignition.

§ 176.605 Care following leakage or sifting of Division 2.3 and 6.1 poisons (Poisons A or B).

A hold or compartment containing a package of Division 2.3 or 6.1 poisons (Poison A or B) which has leaked or sifted must be thoroughly cleaned and decontaminated after the cargo is unloaded and before the hold or compartment is used for the stowage of any other cargo.

39. Subpart N would be revised to read as follows:

Subpart N—Detailed Requirements for Class 8 (Corrosive Materials) Materials

§ 176.800 General stowage requirements.

(a) Each package of a Class 8 (corrosive material) material being transported on a vessel must be stowed clear of living quarters, and away from foodstuffs and cargo of an organic nature. Each package of Class 8 (corrosive material) which bears a POISON label must be stowed separate from foodstuffs.

(b) A package of Class 8 (corrosive material) material may not be stowed over any readily combustible material.

(c) Class carboys containing Class 8 (corrosive material) material may not be stowed on board any vessel, other than a barge, more than two tiers high unless each carboy is boxed or crated with neck protection extending to the sides of the carboy box. This protective construction must be strong enough to permit stacking one on top of the other.

(d) A Class 8 (corrosive material) material may not be stowed over a hold or compartment containing cotton unless the deck is of steel and the hatch is fitted with a tight coaming. In addition, the deck must be tight against leakage and the Class 8 (corrosive material) material may not be stowed over the square of the hatch.

(e) Each package of Class 8 (corrosive material) which also bears a FLAMMABLE LIQUID label must be

stowed away from all sources of heat and ignition.

§ 176.805 On deck stowage.

(a) When break bulk Class 8 (corrosive materials) materials being transported on a vessel are stowed on deck:

(1) Provisions must be made for leakage from any package to drain away from other cargo into an overboard scupper or freeing port. The drainage may not enter an enclosed drainage system other than a direct overboard scupper. If the stowage is not practical, sufficient clean dry sand must be placed under and around the lower tier of packages to absorb any leakage.

(2) Dunnage must be provided on the deck and arranged so that any leakage will be apparent.

(3) Any leakage that occurs must be washed down, using liberal quantities of water.

40. Subpart O would be revised to read as follows:

Subpart O—Detailed Requirements for Cotton and Vegetable Fibers, Motor Vehicles, and Asbestos

§ 176.900 Packaging and stowage of cotton and vegetable fibers: general.

(a) Cotton, Division 4.1, NA1365, Cotton, wet, Division 4.2, UN1365, and other vegetable fibers, Division 4.1, being transported on a vessel must be securely baled and bound. Each bale of cotton or vegetable fibers must be covered with bagging on at least three-fourths of its surface, including both ends. Cut cotton linters may be accepted for transportation by vessel when baled and covered with bagging on the soft sides only if the bale is compressed to a density of at least 512 kg/cubic meter (32 pounds per cubic foot) and it is bound with at least six bands per bale. Any poorly compressed bale or any bale having damaged bindings may not be transported by vessel.

(b) Each bale of Cotton, wet, UN1365 must be stowed separately from any bales of dry cotton or vegetable fibers, in a "tween deck space and not overstowed. Any bale of cotton or vegetable fibers which is saturated with water may not be transported by vessel.

(c) Bales of cotton or vegetable fibers showing contact with oil or grease may not be accepted for transportation by vessel.

(d) Cotton or vegetable fibers must be stowed in a hold or compartment in accordance with the following requirements:

(1) All traces of oil or residue in the hold or compartment must be removed;

(2) A recently painted hold or compartment may not be used unless it is thoroughly dry;

(3) Each ventilation cowl serving the hold or compartment must be fitted with a spark screen;

(4) When a bulkhead of the hold or compartment is common with a boiler room, engine room, coal bunker, or galley and subjected to heat, a wooden bulkhead must be erected between the bulkhead and any cotton or vegetable fibers. This wooden bulkhead must be at least 15 cm (6 inches) from a boiler room bulkhead, and at least 5 cm (2 inches) from an engine room, coal bunker, or galley bulkhead;

(5) Each "tween deck hatch must be closed with hatch covers, tarpaulins, and dunnage; however, metal hatch covers which are sealed by other means to provide equivalent protection may be used;

(6) Each hold or compartment must be equipped with a carbon dioxide or overhead water sprinkler system or other approved fixed extinguishing system. Before loading, the extinguishing system must be examined to ensure that it is in good working condition; and

(7) Each hold or compartment must be clear of all debris and swept as clean as practicable before loading.

(e) Naked lights or any fire likely to produce sparks are not permitted on the vessel, dock area, or on any lighters alongside a vessel during loading or unloading of cotton or vegetable fibers.

(f) Upon completion of stowage, each opening must be completely closed. Where required, tarpaulins must be fitted and secured in place to provide a tight hold. During a period of temporary stoppage of loading or unloading, a hatch may be left open. However, during that period, a fire watch, designated by the master or officer-in-charge, must be stationed in the hold or compartment in which the cotton or vegetable fibers are stowed.

(g) At least one fire hose must be connected while cotton or vegetable fibers are being loaded or unloaded. Each fire pump must be operated before any loading or unloading. Pressure must be maintained on each fire main during the loading and the fire hose laid out ready for immediate use. Portable fire extinguishers must be placed to be readily available. The fire hose, fire pumps, and fire extinguishers may be the vessel's equipment or shore equipment.

(h) Smoking is not permitted on a vessel during the loading or unloading of cotton or vegetable fibers except at those times and in those places

designated by the master or officer-in-charge. "NO SMOKING" signs must be conspicuously posted in appropriate places and the responsible person in charge of the loading or unloading (see § 176.57 of this part) must ensure that they are observed.

(i) Cotton or vegetable fibers may be stowed in the same hold over bulk sulfur if the sulfur has been trimmed and leveled and the hold is thoroughly cleaned of sulfur dust. A tight floor of two layers of 2.54 cm (1 inch) crossed clean dunnage boards must be laid on the sulfur before cotton or vegetable fibers are stowed. These substances may be stowed alongside each other in the same hold if they are separated by a tight dustproof wood bulkhead.

(j) Cotton or vegetable fibers may not be stowed in a 'tween deck hold over bulk sulfur in a lower hold unless the 'tween deck hold has been thoroughly cleaned of all sulfur dust and the 'tween deck hatch covers are in place and covered with tarpaulins and dunnage.

§ 176.901 Stowage of cotton or vegetable fibers with rosin or pitch.

(a) Unless impracticable, cotton or vegetable fibers being transported on a vessel may not be stowed in the same hold or compartment with rosin or pitch being transported on the same vessel.

(b) When separate stowage is impracticable, the cotton or vegetable fibers may be stowed in the same hold or compartment with rosin or pitch if they are separated by clean dunnage or a cargo of a non-combustible nature. When such stowage within the same hold or compartment involves large amounts of cotton or fibers or of rosin or pitch, the rosin or pitch must be floored off with at least two layers of 2.54 cm (1 inch) dunnaging and the cotton or vegetable fibers stowed above.

§ 176.903 Stowage of cotton or vegetable fibers with coal.

Cotton or vegetable fibers being transported on a vessel may not be stowed in the same hold with coal. They may be stowed in adjacent holds if the holds are separated by a tight steel bulkhead and the cotton or vegetable fibers are dunnaged at least 5 cm (2 inches) off the bulkhead. Cotton or vegetable fibers may be stowed in a hold above or below one in which coal is stowed if there is a tight steel intervening deck and all hatch covers are in place and covered with tarpaulins.

§ 176.905 Motor vehicles or mechanical equipment powered by internal combustion engines.

(a) A motor vehicle or any mechanized equipment powered by an internal combustion engine is subject to the requirements of this subchapter when carried as cargo on a vessel if the engine or fuel tank contains fuel or if either battery cable is connected. Such vehicles or equipment are excepted from the requirements of this subchapter if the following requirements are met:

(1) For a motor vehicle or mechanical equipment having an internal combustion engine using fuel classed as a flammable liquid material by this subchapter: the fuel tank is empty, the engine is run until it stalls for lack of fuel, both battery cables are disconnected, and no hazardous material is stowed in the vehicle or equipment; or

(2) For motor vehicle or mechanical equipment having an internal combustion engine using liquid fuel classed as a combustible liquid by this subchapter: the fuel tank contains 418 liters (110 gallons) of fuel or less, both battery cables are disconnected and no hazardous material is stowed in the vehicle or equipment.

(b) Before being loaded on a vessel, each vehicle must be inspected for leaks. A vehicle showing any signs of leakage may not be transported.

(c) Each vehicle stowed in a hold or compartment must have the battery cables disconnected and secured away from the battery terminals, unless it is stowed in a hold or compartment designated by the administration of the country in which the vessel is registered to be specially suited for vehicles. See 46 CFR 70.10-44 and 90.10-38 for U.S. vessels.

(d) The fuel tank of a vehicle being transported as cargo on a vessel may not be more than one-fourth full.

(e) All equipment used for handling vehicles must be designed so that the fuel tank and fuel system are protected from stress that might cause rupture or other damage incident to handling.

(f) Whenever possible each vehicle must be stowed to allow for its inspection during transit.

(g) Two hand-held, portable, dry chemical fire extinguishers of at least 4.5 kg (10 pounds) capacity each must be separately located in an accessible compartment in which any motor vehicle is stowed.

(h) "NO SMOKING" signs must be conspicuously posted at each access opening to the hold or compartment.

(i) Except when being transported in a space specially suited for vehicles, the following additional requirements apply to the stowage of any vehicles containing a flammable or combustible liquid:

(1) Each portable electrical light and hand flashlight used in the stowage area must be an approved, explosion-proof type. All electrical connections for any portable light must be made to outlets outside the space in which any vehicle is stowed:

(2) Each hold or compartment must be ventilated and fitted with an overhead water sprinkler system or fixed fire extinguishing system;

(3) Each hold or compartment must be equipped with a smoke or fire detection system; and

(4) All electrical equipment in the hold or compartment other than fixed explosion-proof lighting must be disconnected from its power source at a location outside the hold or compartment during the handling and transportation of any vehicle. Where the disconnecting means is a switch or circuit breaker, it must be locked in the open position until all vehicles have been discharged.

(j) Motor vehicles may be refueled when necessary in the hold of a vessel in accordance with § 176.78.

(k) Motor vehicles with fuel in their tanks may be stowed in a closed freight container if the battery cables are disconnected and secured away from the battery terminals and the following warning is affixed to the access doors: "WARNING—MAY CONTAIN EXPLOSIVE MIXTURES WITH AIR—KEEP IGNITION SOURCES AWAY WHEN OPENING." The warning must be on a contrasting background and must be readily legible from a distance of 8 meters (26 feet).

§ 176.906 Stowage and handling of asbestos.

Asbestos must be stowed, handled, and unloaded, and any asbestos contamination of vessels removed, in a manner that will minimize exposure of personnel to airborne asbestos particles released incident to transportation.

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Alan I. Roberts,

Director, Office of Hazardous Materials Transportation.

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