

of the procedures in § 157.19 and Appendix B is 80 percent or less of the maximum allowable outflow (O_A) as determined by § 157.19(b)(1); and

(2) To protect at least 45 percent of the sum of the side and bottom shell areas, based upon projected molded dimensions, within the cargo tank length. When the vessel design configuration does not provide for the spaces to be distributed to protect at least 45 percent of the side and bottom shell areas, the spaces must be distributed so that the mathematical average of the hypothetical collision (O_c) and the hypothetical stranding (O_s) outflows, determined by application of the procedures in § 157.19 and Appendix B, is a further 2 percent less than the maximum allowable outflow (O_a) for each 1 percent by which the shell area protection coverage required is not achieved.

(e) A ballast space, void or other non-cargo-carrying space used to meet requirements in paragraph (d) of this section must separate the cargo tank boundaries from the shell plating of the vessel by at least 2 meters.

(f) A vessel of conventional form for application of this section has:

(1) A block coefficient of .80 or greater,

(2) A length to depth ratio between 12 and 16, and

(3) A breadth to depth ratio between 1.5 and 3.5.

(g) Segregated ballast spaces, voids, and other noncargo-carrying spaces for a vessel not of conventional form must be distributed in a configuration acceptable to the Coast Guard.

[CGD 74-32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 74-32, 40 FR 49328, Oct. 22, 1975; CGD 75-201, 41 FR 1482, Jan. 8, 1976]

§ 157.10 Segregated ballast tanks and crude oil washing systems for certain new vessels.

(a) This section applies to a new vessel that:

(1) Is constructed under a building contract awarded after June 1, 1979;

(2) In the absence of a building contract, has the keel laid or is at a similar stage of construction after January 1, 1980;

(3) Is delivered after June 1, 1982; or

(4) Has undergone a major conversion for which:

(i) The contract is awarded after June 1, 1979;

(ii) In the absence of a contract, conversion is begun after January 1, 1980; or

(iii) Conversion is completed after June 1, 1982.

(b) Each tank vessel under this section of 20,000 DWT or more that carries crude oil and of 30,000 DWT or more that carries products must have segregated ballast tanks that have a total capacity to allow the vessel to meet the draft and trim requirements in paragraph (c) of this section without recourse to the use of cargo tanks for water ballast.

(c) In any ballast condition during any part of a voyage, including that of lightweight with only segregated ballast, each tank vessel under paragraph (b) of this section must have the capability of meeting each of the following:

(1) The molded draft amidship (dm) in meters, without taking into account vessel deformation, must not be less than dm in the following mathematical relationship:

$$dm = 2.0 + 0.02L$$

(2) The drafts at the forward and after perpendiculars must correspond to those determined by the draft amidship under paragraph (c)(1) of this section, in association with a trim by the stern of no more than 0.015L.

(3) The minimum draft at the after perpendicular is that which is necessary to obtain full immersion of the propeller.

(d) Segregated ballast tanks required in paragraph (b) of this section, voids, and other spaces that do not carry cargo must be distributed:

(1) For a vessel to which § 157.10d applies, in accordance with § 157.10d(c)(4); or,

(2) For a vessel to which § 157.10d does not apply, in accordance with the procedure contained in appendix C to this part.

(e) Each tank vessel under this section of 20,000 DWT or more that carries crude oil must have a crude oil washing system that meets the design, equipment, and installation requirements in Subpart D of this part.

(f) Each tank vessel under this section may be designed to carry ballast

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water in cargo tanks as allowed under § 157.35.

[CGD 77-058b, 45 FR 43707, June 30, 1980, as amended by CGD 90-051, 57 FR 36239, Aug. 12, 1992]

§ 157.10a Segregated ballast tanks, crude oil washing systems, and dedicated clean ballast tanks for certain new and existing vessels of 40,000 DWT or more.

(a) An existing vessel of 40,000 DWT or more that carries crude oil and a new vessel of 40,000 DWT or more but less than 70,000 DWT that carries crude oil must have:

(1) Segregated ballast tanks with a total capacity to meet the draft and trim requirements in paragraph (d) of this section; or

(2) A crude oil washing system that meets the design, equipment, and installation requirements of Subpart D of this part.

(b) [Reserved]

(c) An existing vessel of 40,000 DWT or more that carries products and a new vessel of 40,000 DWT or more but less than 70,000 DWT that carries products must have:

(1) Segregated ballast tanks with a total capacity to meet the draft and trim requirements in paragraph (d) of this section; or

(2) Dedicated clean ballast tanks that have a total capacity to meet the draft and trim requirements in paragraph (d) of this section and that meet the design and equipment requirements under Subpart E of this part.

(d) In any ballast condition during any part of a voyage, including that of lightweight with either segregated ballast in segregated ballast tanks or clean ballast in dedicated clean ballast tanks, each tank vessel under paragraph (a)(1), or (c) of this section must have the capability of meeting each of the following without recourse to the use of cargo tanks for water ballast:

(1) The molded draft amidship (dm) in meters, without taking into account vessel deformation, must not be less than dm in the following mathematical relationship:

$$dm=2.0+0.02L$$

(2) The drafts at the forward and after perpendiculars must correspond to those determined by the draft

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amidship under paragraph (d)(1) of this section, in association with a trim by the stern of no more than 0.015L.

(3) The minimum draft at the after perpendicular is that which is necessary to obtain full immersion of the propeller.

(e) Each tank vessel that meets paragraph (a)(1), or (c) of this section may be designed to carry ballast water in cargo tanks as allowed under § 157.35.

NOTE: Segregated ballast tanks located in wing tanks provide protection against oil outflow in the event of a collision, ramming, or grounding.

[CGD 77-058b, 45 FR 43707, June 30, 1980, as amended by CGD 82-28, 50 FR 11626, Mar. 22, 1985; USCG-1998-3799, 63 FR 35531, June 30, 1998]

§ 157.10b Segregated ballast tanks, dedicated clean ballast tanks, and special ballast arrangements for tank vessels transporting Outer Continental Shelf oil.

(a) Each tank vessel that is engaged in the transfer of crude oil from an offshore oil exploitation or production facility on the Outer Continental Shelf of the United States on or after June 1, 1980 must, if segregated ballast tanks or dedicated clean ballast tanks are not required under § 157.09, § 157.10 or § 157.10a, have one of the following:

(1) Segregated ballast tanks with a total capacity to meet the draft and trim requirements in paragraph (b) of this section.

(2) Dedicated clean ballast tanks having a total capacity to meet the draft and trim requirements in paragraph (b) of this section and meeting the design and equipment requirements under Subpart E of this part.

(3) Special ballast arrangements acceptable to the Coast Guard.

(b) In any ballast condition during any part of a voyage, including that of lightweight with either segregated ballast in segregated ballast tanks or clean ballast in dedicated clean ballast tanks, each vessel under paragraph (a)(1) or (a)(2) of this section must have the capability of meeting each of the following:

(1) The molded draft amidship (dm), in meters, without taking into account vessel deformation, must not be less than "dm" in the following mathematical relationship: