

(ii) If welded, caution must be exercised in the welding process so that the door frame is not distorted.

[CGD 79-023, 48 FR 51048, Nov. 4, 1983, as amended by CGD 88-032, 56 FR 35828, July 29, 1991; USCG-2000-7790, 65 FR 58464, Sept. 29, 2000]

### Subpart D [Reserved]

### Subpart E—Special Rules Pertaining to Tugboats and Towboats

#### § 174.140 Specific applicability.

Each tugboat and towboat inspected under subchapter I of this chapter must comply with this subpart.

#### § 174.145 Intact stability requirements.

(a) In each condition of loading and operation, each vessel must be shown by design calculations to meet the requirements of paragraphs (b) through (e) of this section.

(b) The area under each righting arm curve must be at least 16.9 foot-degrees (5.15 meter-degrees) up to the smallest of the following angles:

- (1) The angle of maximum righting arm.
- (2) The downflooding angle.
- (3) 40 degrees.

(c) The area under each righting arm curve must be at least 5.6 foot-degrees (1.72 meter-degrees) between the angles of 30 degrees and 40 degrees, or between 30 degrees and the downflooding angle if this angle is less than 40 degrees.

(d) The maximum righting arm shall occur at a heel of at least 25 degrees.

(e) The righting arm curve must be positive to at least 60 degrees.

(f) For the purpose of this section, at each angle of heel, a vessel's righting arm may be calculated considering either—

- (1) The vessel is permitted to trim free until the trimming moment is zero; or
- (2) The vessel does not trim as it heels.

### Subpart F [Reserved]

### Subpart G—Special Rules Pertaining to Offshore Supply Vessels

SOURCE: CGD 82-004 and CGD 86-074, 62 FR 49353, Sept. 19, 1997, unless otherwise noted.

#### § 174.180 Applicability.

Each offshore supply vessel (OSV), except a liftboat inspected under subchapter L of this chapter, must comply with this subpart.

#### § 174.185 Intact stability.

(a) Each OSV must be shown by design calculations to meet, under each condition of loading and operation, the minimal requirements for metacentric height (GM) in §170.170 of this chapter, and in either §170.173 of this chapter or paragraphs (b) through (e) of this section.

(b) The area under each righting arm curve must be at least 0.08 meter-radians (15 foot-degrees) up to the smallest of the following angles:

- (1) The angle of maximum righting arm;
- (2) The downflooding angle; or
- (3) 40 degrees.

(c) The downflooding angle must not be less than 20 degrees.

(d) The righting arm curve must be positive to at least 40 degrees.

(e) The freeboard at the stern must be equal to the freeboard calculated to comply with subchapter E of this chapter or to the value taken from Table 174.185, whichever is less.

(f) For paragraphs (b) and (d) of this section, at each angle of heel an OSV's righting arm may be calculated considering either—

- (1) The vessel is permitted to trim free until the trimming moment is zero; or
- (2) The vessel does not trim as it heels.

(g) For the purpose of paragraphs (b) and (d) of this section, the method of calculating righting arms chosen must be the same for all calculations.

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TABLE 174.185—MINIMAL FREEBOARD AT THE STERN

| LBP in meters (feet)                  | Freeboard at stern in millimeters (inches) |
|---------------------------------------|--|
| Less than 20 (65) .....               | 300 (12)                                   |
| 20 (65) but less than 30 (100) .....  | 380 (15)                                   |
| 30 (100) but less than 40 (130) ..... | 400 (18)                                   |
| 40 (130) but less than 50 (155) ..... | 500 (20)                                   |
| 50 (155) but less than 60 (190) ..... | 560 (22)                                   |
| 60 (190) but less than 70 (230) ..... | 610 (24)                                   |
| 70 (230) and greater .....            | 660 (26)                                   |

§ 174.190 Collision bulkhead.

(a) Each OSV must have a collision bulkhead in compliance with §§ 171.085(c)(1), (d), (e)(2), and (f) of this chapter.

(b) Penetration of the collision bulkhead by piping must be minimal, and, where fitted, piping must meet the requirements of §§ 56.50-1(b)(1) and (c) and 128.230 of this chapter.

§ 174.195 Bulkheads in machinery spaces.

(a) The bulkhead in each machinery space of each OSV must be watertight to the bulkhead deck.

(b) Each penetration of, and each opening in, a bulkhead in a machinery space must—

(1) Be kept as high and as far inboard as practicable; and

(2) Except as provided by § 174.210 of this subpart and by paragraph (c) of this section, have means to make it watertight.

(c) No penetration of a bulkhead in a machinery space by a ventilation duct need have means to make the bulkhead watertight if—

(1) Every part of the duct is at least 760 millimeter (30 inches) from the side of the OSV; and

(2) The duct is continuously watertight from the penetration to the main deck.

(d) Each penetration of a bulkhead in a machinery space by piping must meet the design requirements for material and pressure in subchapter F of this chapter.

§ 174.200 Damaged stability in machinery spaces for all OSVs.

Each OSV must be shown by design calculations to comply, under each afloat condition of loading and oper-

ation, with § 174.207 of this subpart in case of damage between any two watertight bulkheads in each machinery space.

§ 174.205 Additional damaged stability for OSVs carrying more than 16 offshore workers.

(a) *Calculations.* Each OSV carrying more than 16 offshore workers must be shown by design calculations to comply, under each afloat condition of loading and operation, with § 174.207 of this subpart in case of the damage specified by paragraph (b) of this section.

(b) *Character of damage.* For paragraph (a) of this section, design calculations must show that the OSV can survive damage at any place other than either the collision bulkhead or a transverse watertight bulkhead unless—

(1) The transverse watertight bulkhead is closer than the longitudinal extent of damage, specified by Table 174.207(a), to the adjacent transverse watertight bulkhead; or

(2) The transverse watertight bulkhead has a step or a recess, which must be assumed damaged, if it is both more than 3 meters (10 feet) in length and located within the transverse extent of damage specified by Table 174.207(a) of this section.

§ 174.207 Damaged stability criteria.

(a) *Extent of damage.* Damage must consist of penetrations having the dimensions specified by table 174.207(a) of this section, except that, if the most disabling penetrations are smaller than the penetrations specified by the table, damage must consist of the smaller penetrations.

(b) *Permeability of spaces.* The permeability of a floodable space must be as specified by Table 174.207(b) of this section.

(c) *Survival conditions.* An OSV is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(1) *Final waterline.* The final waterline, in the final stage of sinkage, heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, a tonnage opening, an