TABLE III—TI LIMITS FOR FREIGHT CONTAINERS AND CONVEYANCES

| Type of freight container or conveyance | Limit on total sum of transport indexes in a single freight container or aboard a conveyance | | | |
|---|---|---|---|---|
| | Not under exclusive use | | Under exclusive use | |
| | Non-fissile material | Fissile material | Non-fissile material | Fissile material[a] |
| Freight container—Small | 50 | 50 | N/A | N/A. |
| Freight container—Large | 50 | 50 | No limit | 100[b]. |
| Vessel[c]: | | | | |
| 1. Hold, compartment or defined deck area: | | | | |
| Packages, overpacks, small freight containers | 50 | 50 | No limit | 100[b]. |
| Large freight containers | 200[d] | 50 | No limit | 100[b]. |
| 2. Total vessel: | | | | |
| Packages, etc. | 200[d] | 200[d] | No limit[e]. | 200[e]. |
| Large freight containers | No limit[d] | No limit[d] | No limit | No limit[d]. |

[a] Provided that transport is direct from the consignor to the consignee without any intermediate in-transit storage, where the total TI exceed 50.

[b] In cases in which the total TI is greater than 50, the consignment must be so handled and stowed so that it is always separated from any package, overpack, portable tank or freight container carrying Class 7 (radioactive) materials by at least 6 m (20 feet).

[c] For vessels the requirements given in 1 and 2 must be fulfilled.

[d] Provided that the packages, overpacks, portable tanks or freight containers, as applicable, are stowed so that the total sum of the TI's in any group does not exceed 50, and that each group is handled and stowed so that the groups are separate from each other by at least 6 m (20 feet).

[e] Packages or overpacks carried in or on a transport vehicle which are offered for transport under the provisions of § 173.441(b) of this subchapter may be transported by vessel provided that they are not removed from the vehicle at anytime while on board the vessel.

[Amdt. 176–37, 60 FR 50333, Sept. 28, 1995, as amended by 176–37, 61 FR 20753, May 8, 1996; 63 FR 52850, Oct. 1, 1998; 66 FR 45384, 45385, Aug. 28, 2001]

### § 176.708 Segregation distance table.

(a) Table IV applies to the stowage of packages of Class 7 (radioactive) materials on board a vessel with regard to transport index numbers which are shown on the labels of individual packages.

(b) RADIOACTIVE YELLOW–II or YELLOW–III labeled packages may not be stowed any closer to living accommodations, regularly occupied working spaces, spaces that may be continually occupied by any person (except those spaces exclusively reserved for couriers specifically authorized to accompany such packages), or undeveloped film than the distances specified in TABLE IV.

(c) Where only one consignment of a Class 7 (radioactive) material is to be loaded on board a vessel under exclusive use conditions, the appropriate segregation distance may be established by demonstrating that the direct measurement of the radiation level at regularly occupied working spaces and living quarters is less than 7.5 microsieverts per hour (0.75 mrem per hour).

(d) More than one consignment may be loaded on board a vessel with the appropriate segregation distance established by demonstrating that direct measurement of the radiation level at regularly occupied working spaces and living quarters is less than 7.5 microSieverts per hour (0.75 mrem per hour), provided that:

(1) The vessel has been chartered for the exclusive use of a competent person specialized in the carriage of Class 7 (radioactive) material; and

(2) Stowage arrangements have been predetermined for the entire voyage, including any Class 7 (radioactive) material to be loaded at ports of call enroute.

(e) The radiation level must be measured by a responsible person skilled in the use of monitoring instruments.

(f) Table IV is as follows:

TABLE IV

| Sum of transport indexes of the packages | Minimum distance in feet from living accommodation or regularly occupied working space | | Minimum distance in feet from undeveloped film and plates | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 day voyage | | | 2 day voyage | | | 4 day voyage | | | 10 day voyage | | | 20 day voyage | | | 30 day voyage | | | 40 day voyage | | | 50 day voyage | | |
| | Cargo thickness in feet (unit density) | | | | | | | | | | | | | | | | | | | | | | | | | |
| ..... | Nil | 3 | Nil | 3 | 6 | Nil | 3 | 6 | Nil | 3 | 6 | Nil | 3 | 6 | Nil | 3 | 6 | Nil | 3 | 6 | Nil | 3 | 6 | Nil | 3 | 6 |
| 0.1 to 0.5 ..... | 5 | X | 6 | X | X | 8 | X | X | 11 | X | X | 17 | 4 | X | 25 | 6 | X | 30 | 7 | X | 35 | 8 | X | 39 | 9 | X |
| 0.6 to 1 ..... | 6 | X | 8 | X | X | 11 | X | X | 16 | 4 | X | 25 | 6 | X | 35 | 8 | X | 42 | 10 | X | 50 | 12 | X | 55 | 13 | X |
| 1.1 to 2 ..... | 9 | X | 11 | X | X | 16 | 4 | X | 22 | 5 | X | 35 | 8 | X | 50 | 12 | X | 61 | 14 | X | 70 | 17 | X | 78 | 19 | X |
| 2.1 to 3 ..... | 10 | X | 14 | X | X | 19 | 5 | X | 27 | 6 | X | 42 | 10 | X | 61 | 14 | X | 74 | 18 | X | 86 | 20 | X | 96 | 23 | X |
| 3.1 to 5 ..... | 13 | X | 17 | 4 | X | 25 | 6 | X | 35 | 8 | X | 55 | 13 | X | 78 | 19 | X | 96 | 23 | X | 110 | 26 | X | 124 | 29 | 7 |
| 5.1 to 10 ..... | 19 | 4 | 25 | 6 | X | 35 | 8 | X | 50 | 12 | X | 78 | 19 | X | 110 | 26 | X | 135 | 33 | 8 | 155 | 37 | 9 | 175 | 42 | 10 |
| 10.1 to 20 ..... | 26 | 6 | 35 | 8 | X | 50 | 12 | X | 69 | 17 | X | 110 | 26 | X | 155 | 37 | 9 | 190 | 46 | 11 | 220 | 53 | 13 | 250 | 59 | 14 |
| 20.1 to 30 ..... | 32 | 8 | 43 | 10 | X | 61 | 14 | X | 85 | 20 | X | 135 | 32 | 8 | 190 | 45 | 11 | 235 | 56 | 13 | 270 | 65 | 16 | 305 | 72 | 17 |
| 30.1 to 50 ..... | 42 | 10 | 55 | 13 | X | 78 | 19 | X | 110 | 26 | X | 175 | 42 | 10 | 245 | 58 | 14 | 300 | 73 | 17 | 350 | 84 | 20 | 390 | 94 | 22 |
| 50.1 to 100 ..... | 59 | 14 | 78 | 19 | X | 110 | 26 | X | 155 | 37 | 9 | 245 | 59 | 14 | 350 | 82 | 20 | 430 | 105 | 24 | 515 | 118 | 28 | 550 | 130 | 32 |
| 100.1 to 150 ..... | 72 | 17 | 96 | 23 | X | 135 | 32 | 8 | 190 | 46 | 11 | 300 | 72 | 17 | 425 | 100 | 24 | 525 | 125 | 30 | 600 | 145 | 35 | (7) | 165 | 39 |
| 150.1 to 200 ..... | 84 | 20 | 110 | 26 | X | 155 | 37 | 9 | 200 | 53 | 13 | 350 | 84 | 20 | 490 | 115 | 28 | 600 | 140 | 35 | (7) | 165 | 40 | (7) | 190 | 45 |
| 200.1 to 300 ..... | 105 | 24 | 135 | 32 | X | 190 | 46 | 11 | 270 | 64 | 15 | 425 | 105 | 25 | 600 | 145 | 35 | (7) | 180 | 42 | (7) | 205 | 49 | (7) | 230 | 55 |
| 300.1 to 400 ..... | 120 | 28 | 160 | 37 | 9 | 220 | 53 | 13 | 310 | 75 | 18 | 500 | 120 | 28 | (7) | 165 | 40 | (7) | 205 | 49 | (7) | 235 | 57 | (7) | 265 | 63 |

*Note:*

(1) X—indicates that thickness of screening cargo is sufficient without any additional segregation distance.

(2) By using 6 feet of intervening unit density cargo for persons and 10 feet for film and plates, no distance shielding is necessary for any length of voyage specified.

(3) Using 1 steel bulkhead or steel deck—multiply segregation distance by 0.8. Using 2 steel bulkheads or steel decks—multiply segregation distance by 0.64.

(4) ''Cargo of Unit Density'' means cargo stowed at a density of 1 ton (long) per 36 cubic feet; where the density is less than this the depth of cargo specified must be increased in proportion.

(5) ''Minimum distance'' means the least in any direction whether vertical or horizontal from the outer surface of the nearest package.

(6) The total consignment on board at any time must not exceed transport indexes totalling 200 except if carried under the provisions of §176.704(f). The figures below the double line of the table should be used in such a contingency.

(7) Not to be carried unless screening by other cargo and bulkheads can be arranged in accordance with the other columns.

[Amdt. 176–15, 48 FR 10245, Mar. 10, 1983, as amended by Amdt. 176–37, 60 FR 50334, Sept. 28, 1995]