

capacity) or the smaller of the two tanks (if they differ in capacity) adjacent to such space, multiplied by  $S_i$  as defined below and taking for all other wing tanks involved in such a collision the value of the actual full volume.

$$S_i = 1 - \frac{l_i}{l_c}$$

where  $l_i$  = length in metres of void space or segregated ballast tank under consideration.

- (3) (a) Credit shall only be given in respect of double bottom tanks which are either empty or carrying clean water when cargo is carried in the tanks above.
- (b) Where the double bottom does not extend for the full length and width of the tank involved, the double bottom is considered non-existent and the volume of the tanks above the area of the bottom damage shall be included in formula (II) even if the tank is not considered breached because of the installation of such a partial double bottom.
- (c) Suction wells may be neglected in the determination of the value  $h_i$  provided such wells are not excessive in area and extend below the tank for a minimum distance and in no case more than half the height of the double bottom. If the depth of such a well exceeds half the height of the double bottom,  $h_i$  shall be taken equal to the double bottom height minus the well height.

Piping serving such wells if installed within the double bottom shall be fitted with valves or other closing arrangements located at the point of connexion to the tank served to prevent oil outflow in the event of damage to the piping. Such piping shall be installed as high from the bottom shell as possible. These valves shall be kept closed at sea at any time when the tank contains oil cargo, except that they may be opened only for cargo transfer needed for the purpose of trimming of the ship.

(4) In the case where bottom damage simultaneously involves four centre tanks, the value of  $O_s$  may be calculated according to the formula

$$O_s = \frac{1}{4} (\sum Z_i W_i + \sum Z_i C_i) \quad \text{(III)}$$

(5) An Administration may credit as reducing oil outflow in case of bottom damage, an installed cargo transfer system having an emergency high suction in each cargo oil tank, capable of transferring from a breached tank or tanks to segregated ballast tanks or to available cargo tankage if it can be assured that such tanks will have sufficient ullage. Credit for such a system would be governed by ability to transfer in two hours of operation oil equal to one half of the largest of the breached tanks involved and by availability of equivalent receiving capacity in ballast or cargo tanks. The credit shall be confined to permitting calculation of  $O_s$  according to formula (III). The pipes for such suctions shall be installed at least at a height not less than the vertical extent of the bottom damage  $v_s$ . The Administration shall supply the Organization with the information concerning the arrangements accepted by it, for circulation to other Parties to the Convention.

#### Regulation 24

##### *Limitation of Size and Arrangement of Cargo Tanks*

(1) Every new oil tanker shall comply with the provision of this Regulation. Every existing oil tanker shall be required, within two years after the date of entry into force of the present Convention, to comply with the provisions of this Regulation if such a tanker falls into either of the following categories:

- (a) a tanker, the delivery of which is after 1 January 1977; or
- (b) a tanker to which both the following conditions apply:
- (i) delivery is not later than 1 January 1977; and