

# Engineering Circular No.71

**NO: ENG/OPP-53(9)/87-I**

**Date : 28th March 2006**

**SUBJECT: GUIDELINE FOR MAINTENANCE OF OILY WATER SEPARATOR AND FILLING UP OF THE OIL RECORD BOOK (MACHINERY SPACE OPERATIONS)**

## 1. PREAMBLE:

The global shipping industry is committed to a zero tolerance approach to any non-compliance with the International Convention for the prevention of Pollution from Ships (MARPOL 73/78). In particular the shipping industry is committed to strict adherence to International Maritime organization (IMO) requirements concerning the use of Oily Water Separators and the monitoring and discharge of oil into the sea.

Ship owners and operators have ultimate responsibility for establishing a compliance culture within their companies, as such every seafarer should be made fully aware of the severe legal consequences, both for the company and the seafarers themselves, of even minor non-compliance with environmental rules. Shipping companies and seafarers need to understand that the authorities will detect even the most minor violations of MARPOL 73/78. The following guidelines are intended to highlight some of the issues concerning the use of oily water separators (OWS).

## 2. PURPOSE:

Whereas, in the recent past it has come to the notice of the Directorate General of Shipping that improper maintenance of Oil Record Book (ORB), maintenance and operation of 'Oily Water Separator' (OWS) system have caused:

1. Detention of ships.
2. Imprisonment of seafarers.
3. Heavy fines on seafarers and company.

Also, some seafarer found charged with falsification of statements to government officials, falsification of records in ORB, conspiracy, obstruction of justices and destroying of evidence of oily waste spill, etc due to the evidence of making incorrect entries in the 'ORB', tricking of Oil Water Sensor by running fresh water past the sensor instead of a sample of the actual effluent and discharging of oily bilge water directly to overboard.

Whereas, all efforts must be made to avoid the uncalled situation mentioned in the preceding paragraph, the ship-owners / operators / seafarers must ensure that adequate measures are taken in ensuring that the ship's 'Oily Water Separation' system is maintained and the record of its operation / maintenance are correctly filled up in the 'ORB'. To ensure that the ORB is correctly filled up in pursuant to MARPOL 73/78 regulations, the ship-owner / operator / seafarers should endeavour to take

cognizance of the following guideline for making correct entries in the ORB and also to ensure that all equipments related to pollution prevention are maintained at all times.

### 3. GUIDELINE:

3.1 general: It is to be ensured that correct entries are made in the ORB - Part 1 (Machinery space operations) in accordance with MARPOL 73/78 as amended, Annex I, Chapter-II, Regulation 9,10,11,12 and 20, all operations referred in Regulation 20 need to be recorded in ORB.

3.1.1 The ORB shall be provided and maintained on every oil tanker of 150 GT and above and on every ship of 400 GT and above other than oil tankers.

3.1.2 The ORB must be properly completed for all machinery spaces and ballasting / de-ballasting operations of fuel oil tanks must be clearly and accurately recorded.

3.1.3 Owners and their legal advisors, masters and officers are to note that, in addition to the statutory requirements covering maintenance of an ORB, this record is a valuable means of providing proof that a ship has complied with pollution prevention regulations.

3.1.4 When making entries in the ORB, the date, and the operational letter code and item number shall be inserted in the appropriate columns and the required particulars shall be recorded chronologically in the blank spaces (record of operations).

3.1.5 The entries in the ORB shall be in English.

3.1.6 Each completed operation shall be signed for and dated by the officer(s) in charge. The Master of the ship shall countersign each completed page. Upon completion of each operation/job the proper entries shall be immediately completed. In all circumstances entries in a later period must be avoided.

3.1.7 All entries in the ORB have to be recorded with indelible ink. In case a wrong entry is recorded in the ORB, it should immediately be struck through by a single line in such a way that the wrong entry is still legible. The wrong entry will be signed and the new correct entry will follow. Proof for the wrong entry is to be maintained. No empty lines are to be left between each entry. ORB to be preserved at least for three (03) years from the date of the last entry.

3.1.8 Only one official ORB is to be maintained.

3.2 ship owner / operator to ensure that:

3.2.1 Records are properly maintained and they are kept for at least 3 years.

3.2.2 Ensure that the ISM Safety Management System is implemented in true spirit

3.2.3 Minimize leakages through good house keeping and maintenance of ships machineries.

3.2.4 Ensure concerned ship staffs are familiarized with the operation / maintenance of the oily water separator (OWS) equipment.

3.2.5 Review maintenance records, procedures, ORB, log books and effectiveness of familiarization during internal audits.

3.2.6 Ensure that adequate spares for OWS are available onboard.

3.3 master to ensure that:

3.3.1 Records are kept for at least 3 years

3.3.2. Each page of the ORB is properly dated and signed by Master. Each entry is correct as per format stipulated in MARPOL 73/78 as amended, Annex I, Chapter IV, Appendix III and in line with the other logs on board.

3.3.3 The Chief Engineer is promptly informed when the vessel enters or exits from a "special area" as stipulated in MARPOL 73/78 as amended, Annex I, Chapter II, Reg. 10.

3.3.4 Supplement to IOPP Certificate Form A is properly filled out (tanks & capacities). Any discrepancies are to be immediately brought to the notice of the Company / Administration and to ensure that corrective action (s) are taken.

3.4 Chief Engineer Officer to ensure that:

3.4.1 All operations stipulated in MARPOL 73/78, as amended, Annex I, Chapter II, Reg. 20 are properly recorded in the ORB.

3.4.2 Each entry is correct, as per format stipulated in MARPOL 73/78 as amended, Annex I, Chapter IV, Appendix III, is properly recorded and is in line with the other logs on board and properly signed.

3.4.3 Records are kept for at least 3 years.

3.4.4 Manuals and certificate for Bilge water separator and Bilge water 15-ppm automatic stopping device are available.

3.4.5 Bilge and incineration system (piping, cabling and equipment) are always in good operation, properly monitored and maintained.

3.5. Items to be recorded in ORB:

The list of items of machinery space operations that are to be recorded in the ORB are listed in Appendix III of Annex I of MARPOL 73/78. The items have been grouped into operational sections, each of which is denoted by a letter code (A through I). When making entries in the ORB, the date, the operational (letter) code and item number shall be inserted in the appropriate columns and the required particulars shall be recorded chronologically in the column 'record of operations'. Each completed operation shall be signed and dated by the officer(s) in charge and each completed page shall be signed by the Chief Engineer Officer and master of the ship.

Note: The accuracy of entries in the ORB will depend on the accuracy of tank measurement devices, temperature variations and tank clingage. Do not make any declaration, which is not carried out.

A. BALLASTING AND/OR CLEANING OF FUEL OIL TANKS

1. Identity of tank(s) ballasted and/or cleaned.
2. Whether cleaned since it last contained oil and, if not, type of oil previously carried. Date of last cleaning - oil commercial name, density and/or viscosity
3. Cleaning process:
  - .1 Position of ship and time at the start and completion of cleaning;
  - .2 Identify tank(s) in which one or another method has been employed (rinsing through, steaming, cleaning with chemicals, type and quantity of chemicals used);
  - .3 Identity of tank(s) into which cleaning water was transferred (Quantity of cleaning water to be recorded as well
4. Ballasting:
  - .1 Position of ship and time at the start and completion of ballasting;
  - .2 Quantity of ballast if tanks are not cleaned;

B. DISCHARGE OF DIRTY BALLAST OR CLEANING WATER FROM FUEL OIL TANKS REFERRED UNDER SECTION (A).

1. Identity of tank(s) discharged.
2. Position of ship at start of discharge.
3. Position of ship on completion of discharge.
4. Ship's speed(s) during discharge.
5. Method of discharge:
  - .1 Through 15 ppm equipment;
  - .2 To reception facilities.
6. Quantity discharged.

C. COLLECTION AND DISPOSAL OF OIL RESIDUES (SLUDGE)

## 1. Collection of oil residues.

Quantities of oil residues (sludge) retained on board at the end of a voyage, but not more frequently than once a week. When ships are on short voyages, the quantity should be recorded weekly (Only in tanks listed in item 3 of form A and B of the supplement to the IOPP Certificate).

.1 Separated sludge (sludge resulting from purification of fuel and lubricating oils) and other residues, if applicable:

- Identity of tank(s) as per IOPP Supplement, Form B
- Capacity City of tank(s) in cubic meters
- Total quantity of retention in cubic meters

(Approximate quantity of sludge generation could be 0.8% of HFO daily consumption plus 0.5 % of DO daily consumption)

.2 Other residues (such as oil residues resulting from drainage, leakage, exhausted oil, etc. in the machinery spaces), if applicable due to tank arrangement in addition to I above:

- Identity of tank(s) as per IOPP Supplement, Form B
- Capacity of tank(s) in cubic meters
- Total quantity of retention (Anticipated daily quantity 15 Ltrs. / 1000 KW of actual ME Power for Diesel Engines only).

(Record used oils or other liquids of hydrocarbon origin, which due to degradation cannot be used any more. Entries must be done at the end of each voyage but not more frequently than once per week in case of short voyages).

## 2. Methods of disposal of residue.

State quantity of oil residues disposed of, the tank(s) emptied and the quantity of contents retained:

- .1 To reception facilities (identify port);
- .2 Transferred to another (other) tank(s) (indicate tank(s) and the total content in the tank(s));
- .3 Incinerated (indicate total time of operation);
- .4 Other method (state which)

D. NON-AUTOMATIC DISCHARGE OVERBOARD OR DISPOSAL OTHERWISE OF BILGE WATER WHICH HAS ACCUMULATED IN MACHINERY SPACES

1. Quantity discharged or disposed of.
2. Time of discharge or disposal (start and stop).
3. Method of discharge or disposal:
  - .1 Through 15 ppm equipment (state position at start and end);
  - .2 To reception facilities (identify port);
  - .3 Transfer to slop tank or holding tank (indicate tank(s); state quantity transferred and the total quantity retained in tank(s)).

(Bilge water is originating from leaking water seals of pumps, stern tube, leaking pipes/flanges of fuel oil, steam, sea water, Fresh water, boiler water systems. The anticipated quantity depends on many factors (ER condition and maintenance, crew competence, age of vessel, etc. Guidance on daily bilge water quantity can be reported as: 0.5 m<sup>3</sup> for 40-3000 GT, 1.5 m<sup>3</sup> for 3000-5000 GT, 2.5 m<sup>3</sup> for 5000-7000 GT, 4 m<sup>3</sup> for 7000-10000 GT, 6 m<sup>3</sup> for above 10000 GT, For oil sealed stern lube these values should be reduced by 50%. In case of transfer to reception facilities, the Ships' masters should obtain from the operator of the reception facilities, which include barges and tank trucks, a receipt or certificate detailing the quantity of tank washings, dirty ballast, residues or oily mixtures transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the ORB, may aid the master of the ship in proving that his ship was not involved in a pollution incident. The receipt or certificate should be kept together with the ORB).

E. AUTOMATIC DISCHARGE OVERBOARD OR DISPOSAL OTHERWISE OF BILGE WATER WHICH HAS ACCUMULATED IN MACHINERY SPACES

1. Time and position of the ship when the system was put into automatic mode of operation for discharge overboard.
2. Time when the system was put into automatic mode of operation for transfer of bilge water to holding tank (identify tank)
3. Time when the system was put into manual operation
4. Method of discharge overboard:
  - .1 Through 15-ppm equipment

(This section to be referred when the ships bilge system is provided with floater switches in the bilge wells activating " automatic" bilge water transfer to the bilge water holding tank or with floater switches in the bilge water holding tank activating " automatic" bilge water discharge overboard through the

bilge water separator. Otherwise, Bilges are normally emptied under D 15 through the 15-ppm equipment).

#### F. CONDITION OF OIL DISCHARGE MONITORING AND CONTROL SYSTEM

1. Time of system failure (and total quantity in tank).
2. Time when system was made operational
3. Reasons for failure

#### G. ACCIDENTAL OR OTHER EXCEPTIONAL DISCHARGE OF OIL

1. Time of occurrence
2. Place or position of the ship at the time of occurrence
3. Approximate quantity and type of oil
4. Circumstances of discharge or escape, the reasons therefore and general remarks.

#### H. BUNKERING OF FUEL OR BULK LUBRICATING OIL

1. Bunkering:
  - .1 Place of bunkering
  - .2 Time of bunkering
  - .3 Type and quantity of oil and identity of tank(s) (state quantity added and total content of tank(s))
  - .4 Type and quantity of lubricating oil and identity of tank(s) (state quantity added and total content of tank (s))

#### I. ADDITIONAL OPERATIONAL PROCEDURES AND GENERAL REMARKS

##### 3.6 Checks to be made:

3.6.1 With respect to IOPP Certificate - Supplement to IOPP certificate: Form A for ships other than oil tankers (Appendix 7.3) Form B for oil tankers (Appendix 7.4) - see that The Bilge separator throughput as

stated in paragraph 2.5 matches with the throughput as mentioned in the manufacturer's manual and type certificate, Oil residue (sludge) tanks that are covered in paragraph 3.1 includes all tanks including incinerator sludge tank, HFO/DO/LO separators sludge tanks, stuffing box LO drain tank etc (maintain record of all these tanks), Bilge water holding tanks is covered in paragraph 3.3 unless if a waiver of Reg 16 is valid (then 2.6.2.), Oil residues (sludge) incinerator capacity is stated in paragraph 3.2.1 and in accordance with manufacturer's manual and type certificate, If auxiliary boiler is used to burn Oil Residue (sludge) paragraph 3.2.2 should be marked and in accordance with burner's manual and piping system.

3.6.2 With respect to Sludge collection, pumping, incineration - See that the entry under C 11.1 for total sludge retention quantity on board at the end of voyage is approximately = Sludge produced- (sludge incinerated and/or burned in aux boiler), Sludge daily quantity from purifiers is approximately = (0.008 up to 0.0 l) x HFO consumption + 0.005 x DO consumption, Sludge from HFO tanks about 15 lt / 1000 KW per day, Note following while filling up ORB

1. C 12.3: Sludge incinerated should never be more than the capacity of the Incinerator: consider Incinerator capacity as mentioned in IOPP Certificate, Form A 3.2.1.
2. C 12.4: Sludge burned in aux. boiler only when IOPP certificate, Form A or B 3.2.3 is ticked
3. E 17, D 13: Bilge water separator capacity as per IOPP certificate Form A 2.5
4. D 15.2, E 19.1: Bilge water separator capacity as per IOPP Certificate Supplement Form A or B 2.5
5. D 15.2, E 19.1: any overboard discharge quantity must be less than the maximum separator throughput.
6. D 15.3: Ensure entry is made at least once per week of transfer and ROB for bilge water.
7. Discharge within special area as defined in MARPOL 73/78 as amended, Annex I, Chapter 11, Reg. 10 ONLY when discharge is made through 15-ppm control equipment, bilges free of cargo slops, ship en route
8. Record of Section E is made only when auto-start system activation with floater switches in bilge wells or bilge water holding tank is provided, certified and is operational, otherwise use section D.

3.6.3 Prior arrival in port - see that: ORB is readily available with record of 3 years from the last entry and duly filled in and signed till the date arriving in port, Engine bilges/sludge overboard valve sealed/locked, Clean Oily Water Separator, if required and ensure availability of spare filter, test operation of 15-ppm 3-way valve, carry out test of Incinerator and ensure all engineer officers are familiarized with the correct operation of Incinerator, ensure shore pumping arrangement and shore connection flange are properly maintained and in a working condition, ensure Certificates available for incinerator, ODME, bilge water separator, 15-ppm control equipment.



This issues with the approval of the Chief Surveyor with the Govt. of India.

**Sd/-**

**(D. Mehrotra)**

**Dy.Chief Surveyor cum Sr.DDG(Tech**