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## MARPOL Annex IV - Sewage Pollution Prevention

Notice to ship owners, managers, Masters, Approved Nautical Inspectors, Recognised Organisations and surveyors

*This Notice supersedes BMA Information Bulletin No.166*

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### 1. Purpose

- 1.1. This Notice provides guidance and instructions on the application of Annex IV of the International Convention for the Prevention of Pollution from Ships 1973, as amended by the Protocol of 1978 (MARPOL Annex IV) to Bahamian ships.
- 1.2. Any references to Articles and Regulations in this Notice are references to MARPOL Annex IV unless stated otherwise.

### 2. Application

- 2.1. MARPOL Annex IV applies to Bahamian ships engaged in international voyages and:
  - i. of 400 gross tonnage and above; or
  - ii. of less than 400 gross tonnage, which are certified to carry more than 15 persons, including private (non-commercial) yachts<sup>1</sup>.

### 3. Introduction

- 3.1. MARPOL Annex IV was voluntarily applied to Bahamian ships from its entry into force on 23 September 2003 and became mandatory for Bahamian ships on 08 September 2017.
- 3.2. MARPOL Annex IV is currently being revised and updated by the International Maritime Organization (IMO).

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<sup>1</sup> Private yachts of less than 400 gross tonnage are considered to "carry more than 15 persons" when the total maximum number of persons on board is more than 15

#### **4. Exceptions (Regulation 3)**

- 4.1. Regulation 11 of MARPOL Annex IV does not apply to:
- i. the discharge of sewage from a ship necessary for the purpose of securing the safety of a ship and those on board or saving life at sea; or
  - ii. the discharge of sewage resulting from damage to a ship or its equipment if all reasonable precautions have been taken before and after the occurrence of the damage, for the purpose of preventing or minimizing the discharge.
- 4.2. Any discharge of sewage under paragraphs 4.1.i or 4.1.ii shall be promptly notified to the Bahamas Maritime Authority (BMA) (casualty@bahamasmaritime.com) and the details recorded in the Official Log Book.

#### **5. Special Areas**

- 5.1. Special Areas for the purposes of MARPOL Annex IV are as follows:
- i. the Baltic Sea, as defined in Regulation 1.11.2 of MARPOL Annex I.

#### **6. Surveys and certification (Regulations 4 to 8)**

- 6.1. Bahamas Recognised Organisations shall issue ISPP Certificates to applicable Bahamian ships after an initial or renewal survey in accordance with the provisions of Regulation 4.
- 6.2. Recognised Organisations may issue Statements of Compliance with MARPOL Annex IV to Bahamian ships of less than 400 gross tonnage that carry 15 or fewer persons if requested by the Company. The ship shall fully comply with the relevant provisions of MARPOL Annex IV in such cases.

#### **7. Sewage systems (Regulation 9)**

- 7.1. Every Bahamian ship to which MARPOL Annex IV applies, as indicated in Section 2 above, shall be equipped with one of the following sewage systems:
- i. A sewage treatment plant; or
  - ii. A sewage comminuting and disinfecting system; or
  - iii. A holding tank of sufficient capacity for the retention of all sewage.

## 7.2. **Sewage treatment plants (Regulation 9.1.1)**

- 7.2.1. Sewage treatment plants shall be type approved by a Bahamas Recognised Organisation as follows:
- i. sewage treatment plant installed prior to 01 January 2010 shall comply with resolution MEPC.2(VI); or
  - ii. sewage treatment plant installed on or after 01 January 2010 but prior to 01 January 2016 shall comply with resolution MEPC.159(55); or
  - iii. sewage treatment plant installed on or after 01 January 2016 shall comply with resolution MEPC.227(64).
- 7.2.2. Sewage treatment plants that have not been type approved by a Bahamas Recognised Organisation and which are intended for use on Bahamian ships may be accepted on a case by case basis by the BMA.
- 7.2.3. The BMA is of the opinion that paragraph 4.2 of MEPC.227(64) (for sewage treatment plants installed on passenger ships intending to discharge sewage effluent in special areas) does not apply to Special Purpose Ships.

## 7.3. **Sewage comminuting and disinfecting systems (Regulation 9.1.2)**

- 7.3.1. Regulation 9.1.2 requires sewage comminuting and disinfecting systems to be approved by the Administration, however there are currently no international standards for comminuting and disinfecting systems.
- 7.3.2. For Bahamian ships, the standards for sewage comminuting and disinfecting systems are as follows:
- i. **Faecal Coliform Standard:** Faecal coliform bacteria in the effluent should not exceed 1000/100 cm<sup>3</sup> Most Probable Number (M.P.N.);
  - ii. **Chlorine residual level** to be no more than 0.5mg/l, (by test) post maceration;
  - iii. **Comminuting Standard:** A sample of one litre is passed through a US Sieve No. 12 (with openings of 1.68 mm). The weight of the material retained on the screen after it has been dried to a constant weight in an oven at 103°C must not exceed 10% of the total suspended solids and shall not be more than 50mg.
- 7.3.3. The Company shall confirm to the Recognised Organisation at the first initial or renewal ISPP survey on or after 01 July 2019 that the chlorine residual levels are tested on a regular basis, and that this testing is included in the ship's operating procedures.

- 7.3.4. Where a Bahamian ship has a sewage comminuting and disinfecting system, the surveyor carrying out the ISPP survey will need to be satisfied that the system meets the standards specified in paragraph 7.3.2.
- 7.3.5. Where there is no evidence on board to demonstrate that the standards in 7.3.2 are met, the Company may apply to the BMA Inspections & Surveys department (tech@bahamasmaritime.com) for advice and instructions.
- 7.3.6. Comminuting and disinfecting systems that meet the standards and requirements above may be issued with a letter of approval by the BMA at the request of the Company. A fee of USD300 will be charged for the issue or reissue of a letter of approval.
- 7.3.7. Ships fitted with sewage comminuting and disinfecting systems shall also be fitted with a sewage holding tank(s) for the temporary storage of sewage whilst the ship is less than 3 nautical miles from land.

#### 7.4. ***Sewage holding tanks (Regulation 9.1.3)***

- 7.4.1. Sewage holding tanks shall have sufficient capacity for the retention of all sewage, having regard to the operation of the ship, the number of persons on board and other relevant factors.
- 7.4.2. Sewage holding tanks shall be constructed to the satisfaction of the Recognised Organisation that classes the ship and shall have a means to indicate visually the amount of its contents (e.g. a sight glass).
- 7.4.3. The sewage system should not have fixed connections to ballast water systems (see paragraph 14).

### **8. Standard discharge connections (Regulation 10)**

- 8.1. Every Bahamian ship to which MARPOL Annex IV applies, as indicated in Section 2 above, shall be equipped with a standard discharge connection in accordance with Regulation 10.
- 8.2. As indicated in Regulation 10.2, ships in dedicated trades (i.e. passenger ferries) may, in lieu of being provided with a standard discharge connection, be fitted with alternative discharge connections, such as quick connect couplings. In such cases, the Company must demonstrate that the reception facilities on the ship's route can accept the alternative discharge connection.

## 9. Discharge of sewage (Regulation 11)

- 9.1. Discharge of sewage from ships other than passenger ships in all areas and discharge of sewage from passenger ships outside special areas (Regulation 11A)
- 9.2. Discharge of sewage into the sea is prohibited, except when:
- i. the ship has in operation an approved sewage treatment plant and the effluent does not produce visible floating solids nor cause discoloration of the surrounding water; or
  - ii. the ship is discharging comminuted and disinfected sewage at a distance of more than 3 nautical miles from the nearest land; or
  - iii. the ship is discharging sewage which is not comminuted or disinfected at a distance of more than 12 nautical miles from the nearest land .
- 9.3. Paragraph 9.1.1 does not apply to ships operating in or visiting the waters under the jurisdiction of a State where they are discharging sewage in accordance with less stringent requirements as may be imposed by such State.
- 9.4. Untreated sewage discharged in accordance with paragraph 9.1.1.iii shall not be discharged instantaneously but at a moderate rate when the ship is en route and proceeding at not less than 4 knots.
- 9.5. The rate of discharge referred to in 9.1.3 above shall be approved by the Recognised Organisation that issues the ISPP Certificate, based upon the ship's maximum summer draft and maximum service speed and in compliance with IMO Resolution MEPC.157(55).
- 9.6. Where sewage is to be discharged at a different combination of draft and speed, the Recognised Organisation may approve one or more secondary discharge rates.
- 9.7. The maximum approved discharge rate shall not be exceeded for the discharge of untreated sewage from:
- i. holding tanks and spaces containing living animals; or
  - ii. any other spaces in ships where the approved sewage treatment plant or comminuting/disinfecting plants can be bypassed; or
  - iii. a ballast tank under the circumstances and conditions indicated in paragraph 11 below.

**10. Discharge of sewage from passenger ships within a special area (Regulation 11B)**

- 10.1. Discharge of sewage from a passenger ship in a special area is prohibited:
- i. for new passenger ships, on or after 01 June 2019,
  - ii. for existing passenger ships, other than those specified in iii below, on or after 01 June 2021,
  - iii. for existing passenger ships en route directly to or from a port located outside the special area and to or from a port located east of longitude 28° 10' E within the special area that do not make any other port calls within the special area, on or after 01 June 2023,
- except when the ship has in operation an approved sewage treatment plant meeting the requirements of paragraph 7.2.1.iii, including section 4.2 of MEPC.227(64), as amended, and the effluent does not produce visible floating solids nor cause discoloration of the surrounding water.

**11. Discharge of bio residuals (“sewage sludge”)**

- 11.1. The process of treating raw sewage in approved sewage treatment plants results in liquid effluent that is discharged to sea periodically and bio residuals or “sewage sludge”. Sewage sludge is an unavoidable by-product of the treatment process and is produced by all sewage treatment plants.
- 11.2. In order to ensure that the treatment plant continues to operate effectively and efficiently, it is usually necessary to dispose of sewage sludge periodically. This may be by discharge ashore to reception facilities, further treatment, or discharge overboard (“desludging”).
- 11.3. The term “sewage sludge” is not currently defined in Annex IV, nor is the discharge of sewage sludge specifically addressed. Work is ongoing at the IMO Sub-Committee on Pollution Prevention and Response (PPR) to revise Annex IV and its guidelines and sewage sludge is expected to be addressed in the near future.
- 11.4. In the meantime, the BMA requires sewage sludge to be:
- i. discharged to shore reception facilities, where available; or
  - ii. further treated onboard if appropriate facilities are installed; or
  - iii. discharged at not less than 12 nautical miles from the nearest land .
- 11.5. IMO Resolution MEPC.157(55) does not apply to the discharge of sewage sludge.



## 12. Exceptional storage of treated wastewater, untreated sewage or sewage sludge in ballast water tanks

- 12.1. For the purposes of this Notice, “treated wastewater” (TWW) is the treated liquid effluent discharged from the sewage treatment plant or wastewater processing plant, if fitted.
- 12.2. The BMA recognises there are exceptional situations where, to comply with coastal State regulations or where there are inadequate reception facilities at ports and terminals, it may become necessary to store TWW, untreated sewage or sewage sludge in ballast water tanks that are not formally designated as sewage holding tanks.
- 12.3. The BMA may permit the use of ballast tanks as temporary TWW or untreated sewage holding tanks subject to the following conditions:
- i. the ballast tank is temporarily isolated from the ballast system, so that no accidental discharge via the ballast system can take place within restricted waters ;
  - ii. for TWW, the ballast tank, pipes and pumps are adequately flushed prior to being returned to use for ballast;
  - iii. for untreated sewage, the ballast tank, pipes and pumps are thoroughly flushed, cleaned and disinfected or chemically cleaned prior to being returned to use for ballast;
  - iv. the tank is verified gas free if it is to be entered after having carried TWW or untreated sewage - in particular, the atmosphere should be tested for the presence of Hydrogen Sulphide (H<sub>2</sub>S) gas if untreated sewage has been stored in the tank;
  - v. a report for alleged inadequate reception facilities has been submitted as per paragraph 12 below, if applicable; and
  - vi. the temporary sewage holding tank shall not be located in hazardous areas of the ship
- 12.4. The BMA may permit the use of ballast tanks as temporary sewage sludge holding tanks subject to the following conditions:
- i. the ballast tank is temporarily isolated from the ballast system, so that no accidental discharge of sewage sludge from the ballast system can take place within restricted waters;
  - ii. the ballast tank, pipes and pumps are thoroughly flushed, cleaned and disinfected or chemically cleaned prior to being returned to use for ballast;
  - iii. the tank is verified gas free if it is to be entered after having carried sewage sludge;
  - iv. a report for alleged inadequate reception facilities has been submitted as per paragraph 12 below, if applicable; and
  - v. the tank shall not be located in hazardous areas of the ship.

- 12.5. The Company shall make a request to the BMA for the use of ballast tanks as temporary treated waste water, sewage or sewage sludge holding tanks via the Recognised Organisation that issued the ISPP Certificate, in accordance with the procedure detailed in BMA Information Bulletin No. 8.

### **13. Reporting of inadequate reception facilities**

- 13.1. The BMA recognises that the ability of ships to comply with the discharge requirements of Annex IV may depend upon the availability of adequate port reception facilities, especially within Special Areas.
- 13.2. Where the Master of a Bahamian ship encounters inadequate reception facilities for the discharge of sewage, this shall be reported to the BMA using the form in the Annex to IMO circular MEPC.1/Circ.469/Rev.2.
- 13.3. The Master shall forward the report by email, together with any supporting documentation, to the BMA Maritime Affairs department ([ma@bahamasmaritime.com](mailto:ma@bahamasmaritime.com)) and to the competent Authorities of the port State.

### **14. Grey water**

- 14.1. Grey water is defined as drainage from dishwater, galley sink, shower, laundry, bath and washbasin drains<sup>2</sup>.
- 14.2. Grey water is not considered sewage unless it is mixed with drainage from toilets, urinals, hospitals, and animal spaces, as defined in Regulation 1.3 of MARPOL Annex IV.
- 14.3. There are currently no international requirements dealing with the discharge of grey water. There may, however, be local standards governing the discharge of grey water; for example, in the USA this is covered in the Environmental Protection Agency Vessel General Permit.
- 14.4. It is the responsibility of the Company to establish any local requirements for the discharge of grey water in the area(s) where their ships operate and to comply with those requirements.

### **15. Combined grey water/TWW and ballast water tanks**

- 15.1. Whilst the Ballast Water Management (BWM) Convention does not explicitly forbid connections between combined greywater/TWW tanks and ballast water tanks, such

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<sup>2</sup> IMO Resolution MEPC.227(64), paragraph 2.7



connections are not considered to be in line with the general requirements of the BWM Convention.

- 15.2. As per Regulation A-1.1 of the BWM Convention, "*Ballast Water Capacity means the total volumetric capacity of any tanks, spaces or compartments on a ship used for carrying, loading or discharging Ballast Water, including any multi-use tank, space or compartment designed to allow carriage of Ballast Water*". Combined tanks are therefore regarded as ballast tanks for the purposes of the BWM Convention.
- 15.3. Any tank which has contained grey water or TWW could contaminate or damage the Ballast Water Treatment System and result in the discharged ballast water not meeting the discharge standard specified in Regulation D-2 of the BWM Convention (unless the BWTS is certified to meet the D-2 standard when processing such mixtures).
- 15.4. Where combined tanks are fitted, the following conditions apply:
- i. The tank(s) shall be connected to only one system at any time;
  - ii. The system is to be arranged such that grey water or TWW cannot contaminate the ballast water treatment system ;
  - iii. The tank(s) shall be empty before change of use;
  - iv. The tank(s) shall be adequately flushed after containing grey water or TWW, prior to being returned to use for ballast.

## 16. **Tecnicomar ECOmar Sewage Treatment Plant**

- 16.1. It was reported in February 2019 that a decision had been made to withdraw the Marine Equipment Directive (MED) type approval certification from certain ECOmar sewage treatment plants produced by Tecnicomar. Further updated information has been circulated throughout the maritime industry advising that continuous use of the affected ECOmar sewage treatment plant models is being potentially recognised as harmful to the environment.
- 16.2. **The BMA strongly advises against the use of any of the affected sewage treatment plants for discharge overboard of treated sewage in accordance with Regulations 11.1 and 11.2 of Annex IV of the International Convention for the Prevention of Pollution from Ships, 1973, as amended (MARPOL Annex IV).**
- 16.3. Continuous use of the affected sewage treatment plants may result in the competent authorities of a Coastal State imposing severe sanctions against the ship and her Master as such discharges may be considered a deliberate violation of the provisions of MARPOL Annex IV.

- 16.4. Companies<sup>3</sup> operating ships which have an affected ECOMAR sewage treatment plants installed shall contact the Recognised Organisation that classes the ship and develop a detailed corrective action plan for submission to the BMA for review and acceptance. The plan shall include a list of proposed actions to bring the sewage treatment installation on board into full compliance with Regulation 9 of MARPOL Annex IV. Such actions may include:
- Installation of an upgrade pack by Tecnicomar to restore the Type Approval Certificate of the sewage treatment plant<sup>4</sup>; or
  - Installation of a different sewage treatment plant, new or refurbished, with a valid Type Approval Certificate. A new International Sewage Pollution Prevention Certificate (ISPP) initial survey will need to be completed, and an amended ISPP Certificate issued; or
  - Removal of sewage treatment plant and fitting the ship with a suitable sewage holding tank in compliance with Regulation 9.3 of MARPOL Annex IV. A new ISPP initial survey will need to be completed, and an amended ISPP Certificate issued.
- 16.5. All corrective actions shall be completed by not later than the next scheduled ISPP renewal survey.

## 17. Enquiries

- 17.1. Any enquiries relating to MARPOL Annex IV should be addressed to the ship's Classification Society in the first instance. Alternatively, please contact [tech@bahamamaritime.com](mailto:tech@bahamamaritime.com) or any BMA office.

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<sup>3</sup> The "Company" is the entity responsible for the management of the ship in accordance with the ISM Code. For ships to which the ISM Code is not applicable, the Company is the "Managing Owner" in accordance with Section 52 of the Merchant Shipping Act

<sup>4</sup> It is understood as of February 2021 an upgrade pack is being developed by Tecnicomar in cooperation with a certifying authority

**Revision History**

Version	Description of Revision
1.0	First Issue
1.1	Addition of paragraph 16 on ECOmar (from Technical Alert 21-10)