# International Regulation News Update

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## Marine Environment Protection Committee’s 67th Session

(13 to 17 October 2014)

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(All Ships includes all marine craft including barges, drill rigs, submersibles, and floating platforms)
The 67th session of the Marine Environment Protection Committee met in London from 13 to 17 October 2014. Issues which were subject to significant debate included monitoring ship operational efficiency and revisions of several MARPOL Annexes to mandate compliance with the Polar Code.

Final approval was granted by the Committee for 3 new ballast water treatment systems. Plans were also tentatively agreed on a way forward for undertaking a revision of the G8 Type Approval Guidelines.

**BALLAST WATER MANAGEMENT**

**Ratification Status**

Japan, Tonga, Jordan, Republic of Congo and Turkey recently ratified the Ballast Water Management (BWM) Convention. This brings the current status of ratification to 43 States having 32.54% GT of the world fleet. Conditions for entry into force have been met for the threshold of 30 States, but additional tonnage is still needed to meet the 35% GT of the world fleet threshold.

**BW Tank Stripping**

At the previous session, MEPC 66, held in April 2014, the Committee could not agree on how residual water from ballast tanks that is removed by eductors (using local or treated ballast water) should be considered under the Convention. Due to numerous unresolved issues at MEPC 66 the matter was held in abeyance until MEPC 67.

At this session, the Committee agreed that, because this residual water is not representative of the contents of the water that was in the tank and because local water is normally introduced, sampling during stripping operations is not recommended. In the event sampling is conducted, the above points need to be considered when determining the acceptability of the water discharged during tank stripping operations.

**PSC Guidelines**

The Committee adopted the Guidelines for Port State Control under the BWM Convention, which provides basic guidance for Port State Control (PSC) inspection to verify compliance with the BWM Convention. The guidelines recommend 4 stages of PSC inspection.

- **1st stage** – Initial inspection focuses on documentation (e.g., BWM Certificate, approved BWM Plan, treatment records), a visual check of the overall condition of the BW treatment system. A check to ensure that an officer is responsible and trained for operation of the BWMS is also recommended. The guidance also identifies when “clear grounds” exist to conduct a more detailed inspection.
- **2nd stage** – More detailed inspection checks the operation of the BWMS and the self-monitoring indicators to identify whether it has been operated according to the ballast water management plan.
- **3rd stage** – Sampling, involves an indicative analysis where measurements are taken of parameters (e.g. dissolved oxygen levels, residual chlorine levels) that are not direct measurements of compliance with the Regulation D-2 biological treatment standard (“D-2 standard”), but are indicative of the system’s performance in treating ballast water to the D-2 standard. If the results exceed the acceptance criteria specific to the validated indicative analysis method being used, the PSCO can proceed to the fourth stage. Acceptance criteria for the indicative analysis methods are to be developed with a view to a submission to MEPC 68 in May 2015.
- **4th stage** - detailed analysis, if necessary, verifies compliance with the D-2 ballast water treatment standard. Carrying out such an analysis is not to delay the movement, operation, and departure of the ship.

The Guidelines recognize the revised schedule of implementation of BW Treatments Systems complying with the D-2 biological standard under the provisions of resolution A.1088(28). This resolution recommends that ships constructed before entry into force of the Convention be fitted with D-2 treatment systems at the first MARPOL Annex I renewal survey carried out after entry into force. Violations and control of ships, including stopping ballast water discharges and detainable deficiencies, due to the results of sampling, are also addressed.

The USA, despite not being a signatory to the Convention, placed a reservation in that implementation of the Guidelines cannot govern or remove the right of port States to carry out more onerous testing of BW discharge as provided for in the BWM Convention.
BW Management Convention Implementation

MEPC 67 moved forward towards alleviating concerns with respect to the extent to which installed BWMS, which are approved under the existing Guidelines (G8), treat water to meet the D-2 standard during normal operation of the ship. The efficacy of currently installed systems approved under G8 has been brought into question, particularly in light of the more detailed test protocols implemented by the USA.

To facilitate entry into force of the BWM Convention and provide for fair, practical and effective implementation of the Convention, the Committee took action on the following items.

- **Review of Guidelines (G8)** - a plan of action to conduct a comprehensive review of Guidelines (G8) was agreed. The review of the Guidelines (G8) will be carried out intersessionally. The review will address, at a minimum, differences in type approval protocols of member States, issues raised by (and additional data that may become available from) the Study on Implementing D2, and industry concerns. Those concerns include testing using fresh, brackish and marine waters with a temperature range from cold to tropical warm; testing water with organisms that challenge the treatment process (e.g., low natural mortality or high resistance to disturbance) and with suspended solids; including results of failed tests in the averaged result; and using realistic flow rates. It was reported that the total number of type approved systems now numbers 51.

- **Grandfathering** – The Committee agreed that ships fitted with G8 approved BWM systems should not be penalized. The Committee requested that proposals on how to identify and address these ships in the Convention be submitted to MEPC 68 in May 2015.

- **Study on Implementing D2** – Recognizing industry concerns regarding current type-approved ballast water treatment systems, the Committee agreed for IMO to undertake a study (to be completed no later than 1 August 2015) on the implementation of the D-2 standard and whether G8 type-approved treatment systems installed on ships operate effectively and reliably.

The purpose of the study is also to collect information on the similarities and differences in existing practices employed by approval testing facilities and Administrations on testing of BWMS and any other data available.

**Final Approvals Granted**

Final Approvals were granted by the Committee to three more systems.

**KURITA™ BWMS**

Submitted by Japan (MEPC 66/2/2), this system utilizes a biocide to treat seawater, brackish water and fresh water followed by neutralization with sodium sulfite to not more than 0.2 mg/L (as Cl2).

The purpose of the study is also to collect information on the similarities and differences in existing practices employed by approval testing facilities and Administrations on testing of BWMS and any other data available.
BlueZone™ BWMS

Submitted by the Republic of Korea (MEPC 67/2/1), this system treats ballast water at uptake using an ozone generation module, a micro bubble nozzle in the main ballasting pipe, an ozone neutralization module and a monitoring and control module.

Neutralization is achieved using a 30% solution of sodium thiosulfate, which is available worldwide. The solution is transferred from a dedicated storage tank to a feeder tank in close proximity of the neutralization unit located in the pump room or engine room. An alarm sounds and the system shuts down when the feeder tank is empty.

The results of corrosion testing, carried out over a six month period as per BWM.2/Circ.13/Rev.1, show that there was no significant change of performance of corrosion resistance between the untreated and treated seawater during that period.

MARINOMATE™ BWMS

This system, submitted by the Republic of Korea (MEPC 67/2), consists of four units:

- At uptake a plankill pipe™ unit (a high speed rotating shaft mounted directly in the main ballast pipeline) damages zooplankton by collision and turbulence.
- A disinfecting electrolyser unit generates and introduces total residual oxidant at a concentration of 10 mg/L TRO as Cl₂, effective for both seawater and brackish water. This unit includes a gas separation component for separating hydrogen gas from water and venting it at concentrations below 4% LEL. An alarm is activated if 1% hydrogen gas concentration is detected and the system shuts down at a 2% concentration.
- At discharge, to prevent harmful effects on marine ecosystems the residual chlorine is neutralized by sodium thiosulfate (25% solution) in a neutralization unit.
- A system control unit manages the entire treatment process and records and saves relevant data on the system’s performance.

Corrosion tests were conducted for stainless steel, copper, brass, coated low carbon steel, and non-metals. These materials were exposed to treated and untreated water for six months.

For coated material, there were no pinholes, blisters, rust or chalking on the test panel for both treated and untreated water.

For uncoated substrates, the results of immersion and vapor corrosion tests for treated and untreated water were almost identical.

Basic Approvals Granted

Basic Approval was granted by the Committee to one system:

ELYYSISGUARD BWMS

Submitted by Singapore (MEPC 67/2/3), this system processes the ballast water by 40 µm mesh filtration followed by electrochemical treatment (electrodes with high oxygen over-potential produce powerful hydroxyl radical disinfectants) during ballasting. Neutralization of water with sodium thiosulfate allows discharge without a specified holding time. Tests have been carried out in natural seawater, brackish water and fresh water. Corrosion tests will be carried out prior to submission for Final Approval at a future session of MEPC.

For further information, contact ABS Regulatory Affairs at tel 212-292-8806 | email: gshark@eagle.org
These conditions are Beaufort 8 (6.0 m significant wave height and 9.0 m/s mean wind speed).

The method for determining this minimum threshold for certain ship types (bulk carriers, oil and chemical tankers and combination carriers) during Phase-0 (i.e., those ships which are contracted for construction on/after 1 January 2013) is contained in resolution MEPC.232(65).

Noting the need to have a method available for Phase 1 ships (i.e., those ships which are contracted for construction on/after 1 January 2015) and that ongoing work and scientific research on ships’ maneuverability and safety under adverse weather conditions is not yet completed, the Committee adopted resolution MEPC.255(67) which extends the 2013 Interim Guidelines (MEPC.232(65)) to Phase-1 ships.

**Engine Certification**

The Committee agreed that ships fitted with dual-fuel engines (gas and liquid) should not be required to have dual- or multi-certification for EEDI. Instead, the Committee agreed, in principle, to apply criteria for the determination of the primary fuel for ships equipped with dual-fuel engines. The attained EEDI is then calculated using the $C_f$ factor and SFC (specific fuel consumption) of the identified primary fuel. This has been contained in the 2014 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI) approved at this session as resolution MEPC.254(67).

The Committee also agreed with the IACS unified interpretation that engines >130kW power output installed on ships operating internationally require certification under the NOx Code. This decision has been reflected in MEPC.1/Circ.795/Rev.2.

The Committee also approved revisions to the definition of “marine diesel engines” in MARPOL VI, which include gas fueled engines installed on ships constructed on/after 1 March 2016. Associated adjustments to the NOx Code addressing the certification of gas fuel engines were agreed in principle subject to a more thorough review by IMO’s PPR Sub-Committee.

As a consequence to the revised definition of “marine diesel engines” in MARPOL Annex VI to include gas fuelled engines, the PPR Sub-Committee approved amendments to the NOx Technical Code to permit testing and certification of such engines.

**Availability of 0.50% Sulphur Limit Fuel**

A progress report of the study to determine, under Regulation 14 of MARPOL VI, the availability of fuel oil to meet the specified global 0.5% sulphur limit was presented to the Committee. The draft framework of the methodology to be applied contains key modelling efforts to estimate the demand for compliant fuel needed by marine operators in 2020 and whether the global refining industry will be able to meet this demand in 2020. These efforts will be based on refinery investments and capacity additions expected to be in place in 2020, and if not, the refinery investments and capacity additions needed.

The report advises that when estimating the demand for marine fuels, LNG should be included (to cover new dedicated LNG ships or conversions and LNG use by dual-fuelled ships) despite that it is expected to be of limited use by 2020. Global refinery product demand for non-marine fuel and its alternatives will also be analyzed.

Although proposals for new ECAs likely to be implemented before 2020 remain uncertain, SOx ECA’s for Mexico and Hong Kong, noted as possibilities, would have additional impact on the availability models for 0.5% sulphur fuel oil. As of 1 January 2015, 0.10% fuel is required when operating in any of the four SOx ECAs (Baltic, North Sea, USA/Canada and USA/Caribbean).

Additional information on this is available at http://ww2.eagle.org/content/dam/eagle/publications/2015/ABS-Trends_January2015.pdf.

Additionally, the use of abatement technologies (e.g., exhaust gas scrubbers) was recognized as having the greatest potential to affect demand estimates and represents the largest uncertainty in modelling the 2020 projected demands.

**Fuel Oil Quality Control**

At the request of IMO, ISO developed a fuel oil specification with recommendations on specific parameters related to air quality, ship safety, engine performance and crew health (e.g., hydrogen sulfide) as well as specific values for each parameter. MEPC 61/4/1 contains ISO 8217:2010, which was published on 15 June 2010.

These conditions are Beaufort 8 (6.0 m significant wave height and 9.0 m/s mean wind speed).

These amendments will be submitted to MEPC 68 for adoption.

**FUEL OIL ISSUES**

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Discussion ensued concerning the need to improve proper control of marine fuels prior to delivery to ships and not rely solely on assessments of fuel quality by shipowners after the delivery to the ship in light of IMO’s aim to secure ships and crew safety and environmental protection. At MEPC 66, there was agreement to consider developing possible quality control measures for fuel oil prior to delivery onboard the ship, addressing responsibilities for those controlling and authorizing local fuel oil suppliers (e.g., criteria for the operation of local bunker suppliers and audit/inspection of the local suppliers).

However, the Committee was split on this issue with some recognizing that the supply and delivery of bunkers should not be regulated as it is based on commercial contractual and legal obligations between the supplier, delivery agents and receiver/buyer. On the other hand, others recognized safety concerns with ships receiving “off-spec” fuel oil and the recent reports that up to 30% of bunkers are off specification.

As a compromise, the Committee agreed to task a Correspondence Group to develop non-mandatory guidelines for Governments to apply to enhance the quality control of marine fuel oil suppliers within their jurisdiction and to consider challenges under current legal frameworks which may limit some Governments’ ability to implement such controls.

**Worldwide Average Sulphur Content of Fuel**

In accordance with regulation 14.2 of MARPOL Annex VI, the Committee continues to monitor the average sulphur content residual fuels used by the marine industry. For 2013, the average sulphur content of tested residual fuels decreased from 2.51% in 2012 to 2.43%. The three-year rolling average of the sulphur content decreased to 2.54% from 2.59% in 2012.

Figure 2 shows the distribution of sulphur content in residual fuel tested for 2013.

**Bunker Delivery Notes**

The Committee tasked its technical sub-committee (PPR) to review the text of the bunker delivery note (BDN) to take into account that the sulphur content of fuel oil exceeding the limits specified in Regulation 14 of MARPOL VI can be delivered and used onboard ships fitted with an approved equivalent arrangement for compliance with the SOx emission criteria. Currently, as required in Appendix V of MARPOL Annex VI, the BDN shall include a declaration statement where the fuel oil supplier certifies that the fuel oil supplied is compliant with the relevant sulphur limit value specified in Regulation 14.1 or 14.4 of MARPOL Annex VI.

The PPR 2 Sub-Committee, considered alternate proposals for revised wording to the declaration statement of the BDN. Despite extensive discussion, and despite a clear recognition of the need to amend the BDN, PPR 2 could not come to agreement on the most appropriate wording for the amendment.

**Fig 3 – Sulphur % of Residual Fuel Tested, 2013**

**EGCS Washwater Discharge Criteria**

Resolution MEPC.184(59) provides two options for meeting the Exhaust Gas Cleaning Systems (EGCS) washwater discharge pH criteria of no less than 6.5 at:

- Option (A): the ship’s overboard discharge;
- Option (B): 4m from the discharge point..

Option (A) is the only requirement that can be realistically applied in practice, but results in a more onerous pH discharge standard while operating in the open sea. Recognizing this inconsistency, the Committee tasked its technical sub-committee Pollution Prevention and Response (PPR) to consider the use of a calculation-based methodology for verification of the wash water criteria for pH as an alternative method to verify compliance using Option (B).

The PPR 2 Sub-Committee further reached a compromise and approved a set of draft amendments to the 2009 guidelines for exhaust gas cleaning systems which will allow for the use of this calculation-based methodology.
Clarification was also added to confirm that any future changes to the calculation-based methodology would only be applicable to new installations. The amendments will be submitted to MEPC 68 with a view to adoption at that session this May.

**Operational efficiency standards**

**IMO Progress**

The Committee considered a Correspondence Group’s Report on the development of a data collection system for fuel consumption of ships, including identification of the core elements of such a system. Several proposals to collect specific vessel data on a global basis were presented to the Committee. Two proposals recommended that IMO develop mandatory fleet-wide operational efficiency standards. A third proposal recommended the creation of a mandatory scheme to reduce annual fuel oil consumption of each ship.

All delegations supported collection of fuel consumption data, but numerous objections were raised with respect to the collection of ship specific data relating to the distance the cargo is transported as this would lead to fleet-wide operational energy efficiency standards for ships which could have a significant impact on goods transported to third world countries.

Those Delegations that objected, underlined problems/concerns introduced by commercial considerations, safety issues and uncontrollable external variables (e.g., varying weather conditions, sea state, currents, etc.).

After extensive discussion and agreement to not discuss energy efficiency or operational energy efficiency metrics, the Committee agreed that a Correspondence Group should progress a tentative general framework for a database:

- ship name, IMO number, flag State and registered owner
- ship type, gross/net tonnages, deadweight, engine power, reference/design speed & if applicable, EEDI & ice class
- total annual fuel consumption per fuel type

No decision was made as to whether the collection of fuel consumption data would be mandatory or voluntary. In light of concerns expressed regarding the commercial sensitivity of such data being submitted directly to the IMO database (GISIS), the Committee still needs to consider which data should be made public and which data should remain confidential.

**EU Progress**

The EU has proposed regulation on the Monitoring, Reporting and Verification (MRV) of CO₂ emissions from maritime transport based on the calculation of CO₂ emissions from fuel consumed by ships transporting cargo or passengers for commercial purposes on voyages to, from and between EU ports.

The EU MRV system applies to all ships (regardless of Flag) greater than 5000 GT undertaking the above-mentioned voyages. Warships, naval auxiliaries, fishing vessels, wooden ships of primitive build, public (non-commercial) vessels and ships not propelled by mechanical means are exempted from the Regulation. Each ship will be required to develop and maintain a ship specific monitoring plan which documents the monitoring methodology employed, identifies the ship and shipowner, lists all emission sources, and provides procedures for monitoring fuel consumption and determining activity data per voyage. The monitoring plan is to be assessed by a verifier prior to the start of the reporting period.

From 1 January 2018, companies will be required to monitor individual ship’s emissions on a per-voyage basis and on an annual basis, using one of four methods;

- Bunker Delivery Notes and periodic tank readings;
- Daily monitoring of bunker fuel tanks;
- Flow meters; and
- Direct emissions measurement.

Companies will also be required to submit annual reports of emissions and other relevant information to the EC and Flag Administration. Upon completion of a reporting period and review of the data by the verifier, the ship shall be issued and required to maintain a Document of Compliance for the purpose of demonstrating compliance with the MRV system.

**Third IMO GHG Study 2014**

The Update Study, commissioned as an update of the IMO GHG Study 2009, provides IMO with a multi-year (2007-2012) inventory and future scenarios for GHG and non-CO₂ GHG emissions from ships. The study estimates that for the year 2012 international shipping accounts for approximately 2.2% of global CO₂ and 2.1% of GHG emissions on a CO₂ equivalent basis (CO₂, methane and nitrous oxide).
These figures exclude emissions from domestic fuel consumption data. These estimates have been on a declining trend since their peaks of 2.9% and 2.6%, respectively, in 2008. While slow steaming and historically low activity of the three most significant sectors of the shipping industry (oil tankers, containerships and bulk carriers, which are estimated to contribute more than 60% of the CO₂ emissions) may have contributed to these trends, as well as the 1.5% global reduction of CO₂ after the economic downturn in 2008, it was noted that CO₂ emissions from shipping could increase if market dynamics return to their previous levels.

Unlike IMO’s Second GHG Study in 2009, which averaged fuel consumption, the 2014 Study employs both a top-down (based on fuel sales) and a bottom-up (based on fuel consumption and emissions from individual ship movements) methodology for estimation of emissions. The bottom-up (or activity based) methodology is similar to the averaging approach used in the Second GHG Study in 2009, but this Update Study uses calculated activity, fuel consumption (per engine) and emissions (per GHG and pollutant substances) for each in-service ship during each hour of each year. AIS position data from satellites (as opposed to shore-based data that was all that was available for the 2009 Study), with algorithms to estimate activity time for periods when a ship is not observed, were used together with LRIT and noon report data to validate observed and unobserved activity estimates and associated fuel consumption.

Over the period 2007–2012, this bottom-up method estimated that the average annual fuel consumed by international shipping was 270 million tonnes (70 million tonnes above that calculated from the top-down method). This corresponds to CO₂ emission estimates from international shipping to range between approximately 595 million and 650 million tonnes calculated from top-down fuel statistics, and between approximately 775 million and 950 million tonnes according to bottom-up results. (see Figure 4 for a breakdown according to the major ship type).

Uncertainties remain, particularly in estimating the total number of active ships and the allocation of ships or ship voyages between domestic and international shipping. However it was noted that for years where the source data improved in quality, discrepancies in estimates determined using top-down and bottom-up methodologies begin to converge and resolve some of the uncertainties.

Figure 4: CO₂ emissions 2012 (“bottom-up”)

Depending on future economic and energy developments, four of the five study’s business-as-usual scenarios project that CO₂ emissions by international shipping may increase by 50% to 250% in the period to 2050 assuming that fossil fuels remain dominant. Changes in the fuel mix (e.g., increased use of LNG) have a limited impact on CO₂, highlighting the importance of efficiency improvements in mitigating emissions increases.

The Committee approved the report and agreed that IMO can release it as a general publication.

Polar Code

The Committee approved the environment-related provisions of a new Polar Code and associated amendments to MARPOL Annexes I, II, III, IV and V which will mandate compliance with the Polar Code. Subject to adoption at MEPC 68 in May 2015, the Code is expected to enter into force on 1 January 2017.

In November 2014, MSC 94 adopted a new chapter XIV of SOLAS which requires all SOLAS-certified cargo ships ≥ 500 gt and passenger ships operating in Arctic waters and the Antarctic area to comply with the safety provisions of Part IA of the Polar Code.

New ships constructed on/after 1 January 2017 will need to comply on their delivery. Existing ships, constructed before 1 January 2017, will need to comply with relevant requirements by the first intermediate or renewal survey of the Safety Construction Certificate, whichever comes first, after 1 January 2018.
Table 1 provides an overview of the mandatory environmental provisions of Part II-A of the Code:

| Table 1 – Overview of the Environmental Provisions in Part II-A of the Polar Code |
|----------------------------------|------------------|------------------|------------------|
| Ship Type                        | Category A       | Category B       | Category C       |
| Design Conditions                | Medium (70-120 cm) first year ice and greater | Thin (30-70 cm) first year ice | Less than Cat B ice and/or open water |
| Oil/Oily Water Discharge         | Prohibited, except from machinery spaces on existing ships operating continuously in Arctic waters (>30 days) until 1st INT or REN Survey carried out 12 months after entry into force | Prohibited |
| Fuel Oil Tanks                   | 0.76m outer shell protection for FO tanks >30m³ in new ships | n/a |
| Cargo Oil Tanks                  | 0.76m outer shell protection for all cargo oil tanks in new ships | n/a |
| Oily Bilge Water & Sludge Tanks  | 0.76m outer shell protection for all Oily Bilge Water & Sludge Tanks >30m³ in new ships | n/a |
| Noxious Liquid Substances (NLS)  | Discharge of NLS and mixtures containing NLS are prohibited | Carriage in Ship Type 3 hull requires Flag State approval | n/a |
| Sewage Discharge beyond MARPOL IV| Additional requirements relative to vicinity to ice-shelves | Prohibited for all new ships except when Flag allows operation in ice concentrations > 1/10 for extended periods with approved sewage treatment plant | Prohibited in new passenger ships with exceptions |
| Discharge                        | Garbage (Food Waste) | Prohibited onto ice and <12nm from nearest land, ice shelves and fast ice. Additional treatment requirements. | |
|                                 | Garbage (Cargo Residue) | Discharge of animal carcasses prohibited. Special requirements for cargo residue discharge. | |

Note - New Ship means a ship constructed on/after Polar Code entry into force date