International Regulation News Update

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Marine Environment Protection Committee's 66th Session

(31 March to 4 April 2014)

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(All Ships includes all marine craft including barges, drill rigs, submersibles, and floating platforms)

The 66th session of the Marine Environment Protection Committee met in London from 31 March to 4 April 2014. The Committee adopted revisions to MARPOL Annex VI on Tier III NOx emission standards and energy efficiency, and MARPOL Annex I and the IBC and BCH Codes which mandate stability instruments on oil and chemical tankers.

Additional approvals of new ballast water treatment systems under the Ballast Water Management (BWM) Convention were granted.

MARPOL VI – AIR POLLUTION PREVENTION

Required EEDI for Future Ships

The Committee adopted revisions to Chapter 4 of MARPOL Annex VI on ship energy efficiency via resolution MEPC.251(66) which will enter into force on 1 September 2015.

An "Attained EEDI" (Energy Efficiency Design Index) for the additional ship types and sizes, as indicated in Table 1, will be required to not exceed the product of the maximum allowable "Required EEDI" and the corresponding Reduction Factor, in percentage.

Table 1 - Ship Type/Size vs Reduction Factors

Ship Type	DWT, D GT, G (kT)	Phase No. 0	1	2	3
		Reduction Factor, %			
LNG Carrier	D ≥ 10	n/a	10	20	30
Ro-Ro vehicle carrier	D ≥ 10	n/a	5	20	30
Ro-Ro Cargo Ship	D ≥ 2	n/a	5	20	30
	1 ≥ D < 2	n/a	0-5#	0-20#	0-30#
Ro-Ro Pass Ship	G ≥ 4	n/a	10	15	30
	1 ≥ G < 4	n/a	0-10*	0-15*	0-30*
Cruise Passenger Ship (with non-conventional propulsion*)	G ≥ 85	n/a	10	15	30
	25 ≥G< 85	n/a	0-10*	0-15*	0-30*

* diesel-electric, turbine, and hybrid propulsion systems
# interpret linearly
n/a - no required EEDI applies

The required EEDI (Phase 1) applies to the ships in Table 1 for which:

a) the building contract is placed:

- on/after 1 September 2015 and before 1 January 2020 and the delivery is before 1 January 2024; or
- before 1 September 2015, and the delivery is on or after 1 January 2019 and before 1 January 2024; or

b) in the absence of a building contract, the ship is constructed (keel laid):

- on/after 1 March 2016 and before 1 July 2020, and the delivery is before 1 January 2024; or
- before 1 March 2016, and the delivery is on/after 1 January 2019 and before 1 January 2024.

Revised Incinerator Specifications

The Committee adopted resolution MEPC.244(66) which contains the 2014 Standard Specification for Shipboard Incinerators having capacities up to 4000 kW.

The 2014 Standards revise several definitions so as to be consistent with definitions contained in the text of MARPOL. However, the emission standard remains the same as that contained in resolution MEPC.76(40) which is limited to incinerator capacities up to 1500 kW. It was agreed that the 2014 Standard could be updated at a future point in time to apply to other types of ships if it is found necessary to do so.

The 2014 Standard does not apply to the design, installation and operation of alternative designs of shipboard thermal waste treatment systems including those which use thermal processes to convert ship generated wastes to gas. It is expected that these systems will be considered by the Committee at a future session.

Energy Efficiency Exemptions

Resolution MEPC.251(66) amends regulation 19.3 to specifically exempt application of the Attained EEDI and Required EEDI requirements to cargo ships having ice-breaking capability (i.e., designed to independently break ice of at least 1.0m in thickness at a minimum speed of at least 2 knots without assistance). Additionally, new regulation 19.2.2 was adopted which exempts ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion, from the energy efficiency provisions of Chapter 4 of MARPOL Annex VI.

For further information, contact ABS Regulatory Affairs at tel 212-292-8806 | email: gshark@eagle.org

Engine Emissions

Under current MARPOL Annex VI, Tier III NOx emission standards apply to marine diesel engines installed on new ships constructed on or after 1 January 2016 when operating in designated NOx Emission Control Areas (ECAs). Currently, there are two ECAs, the North American ECA and United States Caribbean Sea ECA.

Last year, MEPC 65 approved draft amendments which would have postponed the Tier III NOx emission standard by five years to 1 January 2021. This was based primarily on the argument that of the three technologies available (selective catalytic reduction (SCR), exhaust gas recirculation (EGR) and dual-fuel LNG) to meet the Tier III emission standard, only one technology, SCR, was considered as being commercially available but was not considered sufficient for global shipping.

However, based on new information made available at this session, the Committee agreed that these technologies are commercially available and, so as to promote a stable regulatory environment for the shipping industry, adopted a compromise set of amendments which do not postpone application of the Tier III NOx emission standard in existing ECAs.

The adopted amendments to regulation 13 of MARPOL VI are contained in resolution MEPC.251(66).

The amendments require compliance with the Tier III emission standard by marine diesel engines installed:

- on ships constructed on or after 1 January 2016 and which are operating in the North American ECA or the U.S. Caribbean Sea ECA; and
- on ships constructed on or after the date of adoption of a new ECA, or a later date as may be specified in the amendment designating the new ECA, whichever is later for operation in the new ECA.

Three exemptions are provided for marine diesel engines installed:

- on purely recreational ships (specifically designed and is used solely for recreational purposes) having a length < 24 m;
- on purely recreational ships constructed prior to 1 January 2021 of less than 500 GT and with a length ≥ 24 m; and
- on ships with a combined propulsion power < 750 kW if it is demonstrated that the ship cannot comply with Tier III because of design or construction limitations.

NOx Code Revisions

Resolution MEPC.251(66) also adopted revisions of the NOx Code which now include, for gas fueled engines, procedures for NOx emission measurements on a test bed and for demonstrating compliance with NOx emission limits on board.

The NOx limits of regulation 13 will therefore apply to an engine normally operating in the gas mode (gas fuel as the main fuel and liquid fuel as the pilot or balance fuel), except where operation on pure liquid fuel becomes necessary if the gas supply becomes restricted due to a system failure. In such a case, the ship is allowed to proceed to the next appropriate port for repair.

STABILITY INSTRUMENTS

Oil and Chemical Carriers

The Committee adopted three resolutions which contain amendments to:

- MARPOL Annex I – MEPC.248(66)
- IBC Code - MEPC.250(66); and
- BCH Code - MEPC.249(66)

All three resolutions require new and existing oil and chemical tankers to be fitted with an approved stability instrument capable of verifying compliance with the applicable intact and damage stability requirements.

These new tankers, constructed on or after 1 January 2016, will need to comply on delivery and existing tankers, constructed before 1 January 2016, will need to comply at the first scheduled renewal survey after 1 January 2016 but not later than 1 January 2021.

The flag Administration may give special dispensation from the provisions of a stability instrument in the following instances:

- tankers where stability is remotely verified by a means approved by the Administration;

- tankers on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved;
- tankers which are loaded within an approved range of loading conditions; and
- existing tankers provided with approved limiting KG/GM curves covering all applicable intact and damage stability requirements.

Gas Carriers

Similar revisions for gas tankers were adopted by the MSC in May 2014 with respect to the IGC Code, but there is a six month delay (to 1 July 2016) for implementation.

Implementation

In preparing for the certification process on existing tankers, which will start in 2016, it is recognized that the exemptions are operationally dependent. Accordingly, owners will need to provide advice to ABS on whether the tankers are considered eligible under any of the four exemptions – individually or collectively.

In making this determination, it is not considered unreasonable to expect that PSC will take a keen interest in this matter and will likely carry out inspections to verify that the tanker's loaded condition is in compliance with the approved stability information onboard using Part 2 of MSC.1/Circ.1461: Guidelines for operation and demonstration of damage stability compliance.

In the event onboard stability software is being used onboard to calculate loading conditions, that software will need to be approved under the applicable intact and damage stability requirements. In this regard, software that has been approved as Type 2 or Type 3 under IACS Unified Requirement L5 is acceptable and is not subject to re-approval. However, an approved stability instrument does not replace the requirement for an approved Stability Booklet to be onboard.

BALLAST WATER MANAGEMENT

BWM Implementation Concerns

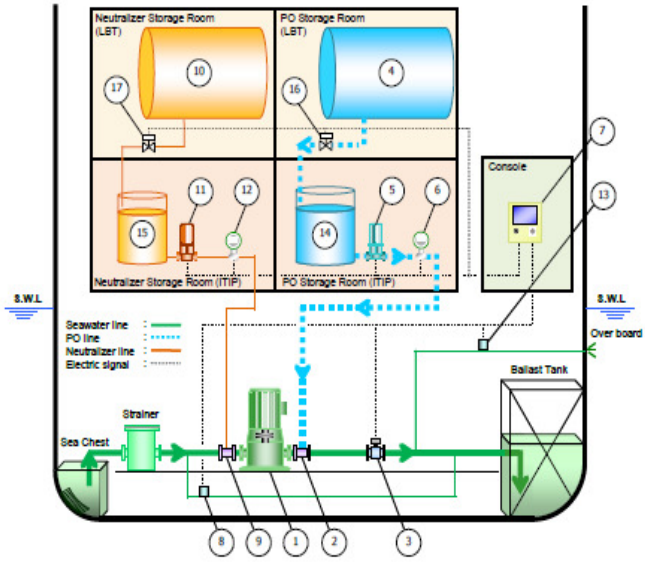
The BW Management Convention enters into force 12 months after ratification is received from 30 States with 35% of the world's gross tonnage. Currently, 40 States with 30.25% of the world's gross tonnage have ratified the Convention. IMO was informed that Argentina, Italy, Japan and Turkey are progressing their national procedures for ratification. If all of them ratified the Convention, then the accumulated tonnage of the signatory countries would become 34.2%.

Final Approvals Granted

Final Approvals were granted to two more systems by the Committee:

<u>SKY-SYSTEM® BWMS with PERACLEAN® OCEAN</u>

Submitted by Japan (MEPC 66/2), this system sterilizes water with automated dosage of 150 mg/L of PERACLEAN® Ocean after filtering on uptake. If necessary, residual Active Substances in water to be discharged are neutralized with sodium sulfite.



1. Ballast pump	7. Control panel	13. PO monitoring unit 2
2. PO injector	8. PO monitoring unit	14. PO intermediate tank
3. Electromagnetic meter	9. Neutralizer injector	15. Neutralizer tank
4. PO Storage tank	10. Neutralizer storage tank	16. PO supply valve
5. PO injection pump	11. Neutralizer injection pump	17. Neutralizer supply valve
6. PO flow meter	12. Neutralizer flow meter	

Figure 1 - Schematic of SKY-SYSTEM® with PERACLEAN®

The storage facility for Peraclean Ocean (PO) needs to be vented and fitted with a safety valve to allow for any overpressure to be vented overboard. Bulk storage of PO should be kept below an average temperature of 30℃.

Leakages are routed via a double-walled pipe into the PO leakage tank (IMDG Code packing group II) which can subsequently be discharge into the waste water tank as well.

Evonik BWMS with PERACLEAN®

Submitted by Germany (MEPC 66/2/5), this system filters water on uptake with a 40 µm automatic self-cleaning filter.

After filtration, PERACLEAN® Ocean (peracetic acid and hydrogen peroxide) is automatically injected at a dosage proportional to the total ballast water flow being pumped on board at a maximum dose of 150 mg/L. An enzyme is added to completely degrade hydrogen peroxide within 24 hours.

Sodium hydroxide (NaOH) solution is automatically added to the ballast water discharge piping if the pH is less than 6.5.

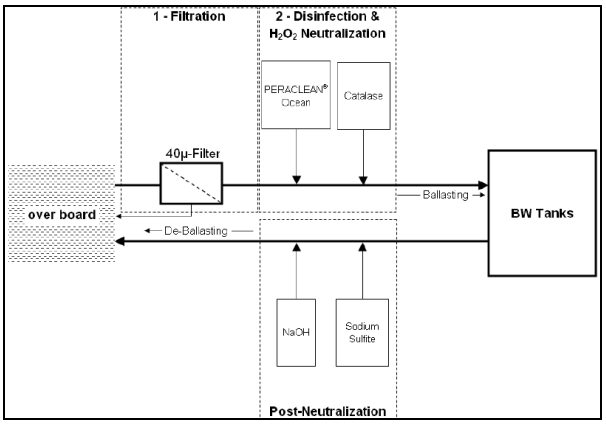


Figure 2 – Basic process of the Evonik BWTS

The system is suitable for ballast water flow rates of up to 2,000 m^3/h and can be applied in waters with temperatures between -1.9°C (seawater) and +35°C, as well as any level of turbidity and salinity. The GESAMP Ballast Water Working Group previously concluded that no significant increase in corrosion compared to normal seawater was made.

Basic Approvals Granted

Basic Approvals were granted by the Committee to four more systems which utilize active substances:

ECOLCELL BTs BWMS

Submitted by Italy (MEPC 66/2/1), this system initially filters, using self-cleaning strainers, some phytoplankton, zooplankton and larger sediments. This is followed by introducing a biocide (sodium hypochlorite) produced through electrolysis.

Neutralization to 0 ppm total residual oxidant (TRO) completes the process at discharge.

The system is skid-mounted and can treat a ballast water flow rate from 200 m^3/h up to 5,000 m^3/h. Hydrogen gas produced as a normal by-product of the generated hypochlorite biocide is contained in a fully sealed tank that is internally ventilated to quickly dilute the hydrogen. A comprehensive set of corrosion testing will be carried out and presented in the application for Final Approval.

ATPS-BLUEsys

Submitted by Japan (MEPC 66/2/2), this system injects sodium hypochlorite generated by the electrolysis unit based on ballast water flow rate, salinity and temperature monitored at uptake. This is followed by degassing to remove the generated hydrogen gas and to increase disinfection performance. Prior to discharge, the water is neutralized with sodium thiosulfate to not more than 0.2 mg/L (as Cl2).

KURITA™ BWMS

Submitted by Japan (MEPC 66/2/4), this system utilizes a biocide (sodium hypochlorite) followed by neutralization with sodium sulfite to not more than 0.2 mg/L (as Cl2).

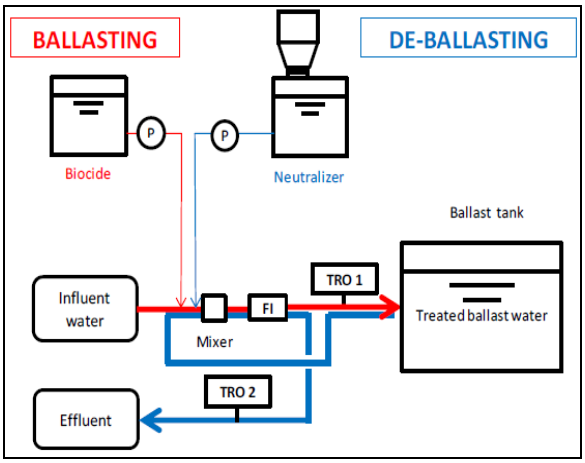


Figure 3 - Concept of the KURITA™ BWMS

One unique aspect of this system is that it does not contain filters or cyclone separators. No additional corrosive effect on usual ship construction materials was observed.

The Group further noted that the applicant intended to verify the presented corrosion data using larger scale testing and would submit the subsequent results in the application for Final Approval.

Corrosion tests carried out show that corrosion on ship materials and equipment by treated ballast water to be very low.

Ecomarine-EC BWMS

Submitted by Japan (MEPC 66/2/3), this system consists of disinfection by sodium hypochlorite generated by in-situ electrolysis, followed by neutralization with sodium thiosulfate (stored onboard in powder form) to not more than 0.2 mg/L (as Cl2).

The corrosion effects on the system materials were verified by exposing them to treated water at two water temperatures (23℃ and 35℃) and for an exposure period of six months. The test results show that the corrosion effects on all materials were evaluated to be within the allowable ranges. Generated hydrogen is separated from ballast water by an automatic gas vent valve located in the main line on the downstream side of the electrolyzer unit and discharged overboard.

Type Approval Guidelines

The Committee discussed the continuing compelling need to amend the G8 Guidelines to ensure that the G8 type approved systems will be found to be in compliance with the BWM Convention, as raised by ICS, BIMCO, INTERTANKO, INTERCARGO and WSC.

It was agreed that a study, to be clarified by the IMO Secretariat at MEPC 67 in October, should be undertaken on the implementation of the D-2 ballast water standards to determine the specific aspects of the G8 Guidelines that need improvement.

MISCELLANEOUS

Ship Generated Underwater Noise

The Committee approved MEPC.1/Circ.833 containing voluntary guidelines for the reduction of underwater noise from commercial shipping in the form of a new Circular. The Guidelines recognize that the largest opportunity for reduction of underwater noise is during the design of new ships and primarily attributable to propeller cavitation radiated noise, followed by hull design and machinery vibration. Noise reduction recommendations are therefore primarily intended for consideration for new ships recognizing the practical challenges available for existing ships.

Two standards are recommended for measurement of underwater noise:

- ISO/PAS 17208-1–Acoustics–Quantities and procedure for description and measurement of underwater sound from ships
- ISO/DIS 16554 - Measurement and reporting of underwater sound radiated from merchant ships

Polar Code

The Committee agreed that the proposed way forward is to complete the review of, and approve, the environmental sections of the Polar Code and associated MARPOL amendments at MEPC 67 in October 2014 with the view to adoption at MEPC 68 in May 2015 so that the Code would enter into force as early as 1 November 2016. In line with the above, the Committee:

- revised Part II-A, Environmental Protection Measures, to remove reference to goals and functional requirements due to the lack of such an approach included in the parent Convention, MARPOL 73/78, and the ambiguities and lack of uniformity that exist with the associated level of environmental protection and the ability to legally enforce/demonstrate compliance with these provisions.
- agreed that a final decision on the minimum double hull protection of 760mm would be subject to an impact assessment by an intersessional correspondence group of cargo tank protection in light of current ship designs and cargo tank protection as per the IBC Code.
- agreed that heavily loaded rolling type bearings, where lubrication is critical due to significantly higher surface pressures than in sliding type bearings, may use mineral and synthetic gear oils which have greater lubricating qualities than biodegradable lubricants which are otherwise required for components having direct seawater interfaces (e.g., shaft and slewing seals).

- retained the proposed requirement of zero discharge of oil and oily waste, otherwise permitted under the provisions of MARPOL 73/78.
- agreed on the need for reception facilities, but that it should not be a condition for entry into force. This recognized the need for adequate waste reception facilities to accommodate the zero discharge requirement with the anticipated increase of marine traffic balanced against the current traffic patterns through the Arctic (involving stopping en route and making use of an available reception facility).

Discharge of Boiler/Economizer Washdown

The Committee did not decide on the disposition of boiler/economizer washwater insofar as how it should be treated - as "operational wastes" (which are subject to control provisions) or as "other similar discharges" which are exempted from the discharge requirements of MARPOL V. The Committee required the co-sponsoring Member States to re-submit this matter for consideration under the provisions of a "new work program item" under IMO's protocol. So, a decision is not expected to be reached on this issue within the next two years.

Availability of 0.50% Sulphur Fuel

MARPOL Annex VI, regulation 14, requires a study to be completed by 2018 to determine the availability of fuel oil for ships to comply with the global 0.5% sulphur limit fuel oil standard on/after 1 January 2020 specified in paragraph 1.3 of regulation 14. While it was recognized that fuel oil demand and refinery supply modelling are key components of a methodology to determine the availability of fuel oil, different opinions were expressed on:

- when a review of that supply/demand should commence. (Some Delegations consider that an early review would provide for greater legal certainty on implementing the global cap and thereby give refineries advanced notice so that necessary steps can be implemented to provide compliant fuel. Others opined that a review completed too early would not provide for reliable indication on the availability compliant fuel in 2020 due to differences in the underlying markets and possible impact of new ECAs);
- how to forecast changes to marine fuel oil availability on both a global level and for the regions defined in the refinery modelling tool, taking into account additional new ECAs; and
- the means to take into account changes in global fuel oil supply and demand as a result of projected economic activity or other influences, on the impact of the use of alternative fuels such as LNG and biofuels; and the impact of the use of alternative compliance methods such as abatement technology.

In light of the above, the Committee tasked a correspondence group to develop the methodology for assessing the global availability of 0.5% sulphur fuel oil which should be submitted to MEPC 68 in 2015 taking into account:

- any new ECA's that may be established;
- projected global economic activity;
- use of alternative fuels such as biofuels and LNG;
- availability of abatement technologies; and
- actual and planned refinery capacities..

Fuel Oil Quality

In 2011, the BLG Sub-Committee considered fuel oil characteristics and parameters addressing air quality, ship safety, engine performance and crew health but could not conclude on proposals to prevent supply of off-specification bunkers via a possible new mechanism for quality control of marine fuels. This was due to a lack of sufficient information and data being available relative to the revised specification of marine fuels (ISO 8217:2010).

However, discussions at subsequent meetings continued to raise ongoing concerns with observed compliance problems related to off-specification bunker fuels. Based on a new submission received at this session of the MEPC, the Committee has agreed to develop 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), and invited further proposals to MEPC 67 in October.