The IMO Marine Environment Protection Committee (MEPC) held its 67th session from 13 to 17 October. This Brief provides an overview of the more significant issues progressed at this session. A full report of the meeting will be included in the next ABS International Regulatory News Update.

Ballast Water Management

Japan, Tonga, Jordan, Republic of Congo and, at MEPC 67, Turkey, have 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

The Committee agreed that sampling during stripping operations is not recommended. If sampling is conducted, it is not representative of the contents of the tank because local water is introduced.

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. However, the guidance cannot limit the rights of a Port State in verifying compliance with the BWM Convention. The guidelines recommend 4 stages of PSC inspection:

1. The first 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;
2. The second 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;
3. The Third 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 have not yet been established. These are to be developed with a view to a submission to MEPC 68 in May 2015.
4. The fourth stage - detailed analysis, if necessary, verifies compliance with the D-2 ballast water treatment standard. PSCO should not delay the movement, operation, and departure of a ship while waiting for results of such detailed analysis - which is expected to take several days.
The PSC 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).

Violations and control of ships, including stopping ballast water discharges and detainable deficiencies, due to the results of sampling, are also addressed. The USA placed a reservation on these Guidelines 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 to alleviate 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 a fair, practical and effective implementation of the Convention, the Committee took action on the following items:

- **Review of Guidelines (G8)** – The Committee developed a plan of action to conduct a comprehensive review of Guidelines (G8), taking into consideration the associated guidance documents (MEPC.228(65), BWM.2/Circ.28, BWM.2/Circ.33, and BWM.2/Circ.43). The review of the Guidelines (G8) will be carried out intersessionally and during the meeting of the Sub-Committee on Pollution Prevention and Response (PPR) in January 2015. 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 outlined in the annex to MEPC 67/2/6 (ICS et al.). 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.

- **Grandfathering** – The Committee agreed that ships fitted with G8 approved BWMS 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 issues with current type approved 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 systems installed on ships operate effectively and reliably. 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.

**Ballast Water Management Systems (BWMS) granted Final Approval by MEPC 67**

It was reported that the total number of type approved systems now numbers 51.

Final approval was granted to 3 new systems, all of which use “active substance” to treat ballast water. All systems were tested as recommended by BWM.2/Circ.13/Rev.1 to determine the impact on low carbon steel coated in compliance with IMO’s Performance Standard for Protective Coatings (PSPC) for dedicated seawater ballast tanks to determine the effect on such coatings. No significant corrosion was reported after a minimum of six months of immersion.

- **BlueZone™** submitted by the Republic of Korea (MEPC 67/2/1) treats ballast water at uptake using an ozone generation module, a micro bubble nozzle in the main ballasting pipe, a neutralization module (using sodium thiosulfate solution) and a monitoring and control module.
• **MARINOMATE™** submitted by the Republic of Korea (MEPC 67/2) consists of four units. At uptake, a plankill pipe™ unit damages zooplankton by collision and turbulence and a disinfecting electrolyser unit generates and introduces total residual oxidant at a concentration of 10 mg/L TRO as Cl2. At discharge, the residual chlorine is neutralized by sodium thiosulfate in a neutralization unit. A system control unit manages the entire treatment process.

• **KURITA™** submitted by Japan (MEPC 67/2/2) uses two different kinds of Active Substance solutions one with a small amount of phosphate as a corrosion inhibitor added and another without phosphate to treat the ballast water during uptake. KURITA™ consists of a biocide tank and pump; a neutralizer dissolving tank to prepare a 10% solution of the granular neutralizer and a neutralizer storage tank and pump; and a system to automatically control the dosages of the chemicals. However, unlike most treatment systems, filters and cyclone separators are not employed.

**Ballast Water Management System granted Basic Approval by MEPC 66**

• **ElysisGuard** submitted by Singapore (MEPC 67/2/3) 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 and neutralization of water with sodium thiosulfate at discharge

**Fuel Oil Issues**

**Availability of 0.50% Sulphur Limit Fuel**

A progress report of the study to determine, under the provisions of MARPOL VI, Regulation 14, the availability of fuel oil to meet the global 0.5% sulphur limit specified in MARPOL Annex VI 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, based on refinery investments and capacity additions 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 will 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. Although proposals for new ECAs likely to be implemented before 2020 remain uncertain, ECA’s for Mexico and Hong Kong were noted as possibilities.

**Worldwide Average Sulphur Content of Fuel**

For 2013, the average sulphur content of the 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

**Fuel Oil Quality Control**

The Committee was split on this issue. On one hand, it was recognized 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 the MSC’s 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.
**Bunker Delivery Notes**

The Committee tasked its technical sub-committee (PPR) to review the text of the bunker delivery note to take into account that the sulphur content of fuel oil exceeding the limits specified in MARPOL VI can be delivered and used onboard ships fitted with an approved equivalent arrangement which complies with the SOx emission criteria.

**Air pollution and energy efficiency**

**Minimum Propulsion Power**

Noting that scientific research on ships’ maneuverability and safety under adverse weather conditions are being undertaken by the EU and Japanese groups is not completed, the Committee approved amendments to the 2013 Interim Guidelines (MEPC.232(65)) which extend the current Phase-0 minimum propulsion power criteria to Phase-1 ships (i.e., those ships which are contracted for construction on/after 1 January 2015). The minimum propulsion power requirements under the EEDI regulations are applicable to bulk carriers, tankers and combination carriers. These ships are required to satisfy the required EEDI requirements and the minimum power requirements, simultaneously.

**Engine Certification**

The Committee agreed that ships with dual-fuel engines (gas and liquid) should not have a dual- or multi-certification for EEDI. However, to equitably account for the different fuels, the Committee agreed, in principle, to use the calorific value of the fuel and criteria for the determination of primary fuel for ships equipped with dual-fuel engines using LNG and fuel oil. EEDI is then calculated with C7 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 of MEPC.

The Committee agreed with the IACS unified interpretation that engines >130kW power output installed on ships operating internationally require certification under the NOx Code.

The Committee 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.

**Miscellaneous**

**Operational efficiency standards for international shipping**

Proposals to collect specific vessel data on a global basis were presented to the Committee. Two proposals recommend that IMO develop mandatory fleet-wide operational efficiency standards. The third proposal recommends 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 a fleet-wide operational energy efficiency standards for ships which would have a significant impact on goods transported to third world countries.

Those 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, GT, NT, DWT, 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 the 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.

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 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. This is higher than the top-down method which estimated that the annual average of fuel allocated to the international fleet was approximately 200 million tonnes. 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.

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 which will be considered for adoption at MEPC 68 in May 2015 so that the Code would enter into force as early as 1 November 2016 through amendments to MARPOL Annexes I, II, III, IV and V. The following provides an overview of the mandatory Part II-A:

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

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

EGCS Washwater Discharge Criteria

Resolution MEPC.170(57) provides two optional criteria for the pH of discharge water coming from Exhaust Gas Cleaning Systems (EGCS) used to reduce the total emission of SOx; a pH value of no less than 6.5 at:
(A) the ship's overboard discharge; or
(B) 4m from the discharge point.

Option (A) is the only requirement that can be applied in the open sea which results in the pH requirement being more difficult to meet at open sea than in port. Recognizing this inconsistency, the Committee tasked its technical sub-committee (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 with Option (B).