International Regulation News Update

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Marine Environment Protection Committee's 69th Session

(18 to 22 April 2016)

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

The 69th session of the Marine Environment Protection Committee met in London from 18 to 22 April 2016. This Update provides additional information to that reported in the MEPC 69 Brief, issued on 22 April 2016.

BALLAST WATER MANAGEMENT

Ratification Status

Subsequent to MEPC 69, IMO issued BWM.1/Circ.37 on 10 June 2016 which announced the ratification of the BWM Convention by St Lucia and Peru. As of 10 June 2016, there were 51 Contracting States to the Convention representing approximately 34.87% of the gross tonnage of the world's merchant shipping – just short of the 35% needed to bring the Convention into force.

Type Approval Guidelines (G8)

Some progress was made at this session under the initiative to revise the Guidelines for type approval to be more robust and transparent. The following highlights the more significant aspects that were progressed.

Type Approval Documentation - An important development is the concept of documenting the Limiting Operating Conditions and critical parameters for System Design Limitations. Text has been drafted which would require information on operational parameters that are material to the operation of the system (e.g., minimum and maximum flow rates, time between uptake and discharge) and design limits (e.g., water quality expressed by range of salinity and temperature, oxidant demand and ultraviolet transmittance).

Corrosion Test Methodology - The Committee agreed in principle to revise the corrosion test methodology which removes ambiguities and brings the testing and evaluation requirements (particularly with respect to paint adhesion tests) in line with the *Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers* (MSC.215(82)).

It was noted that while all the presented coating systems met the MSC.215(82) criteria, several had not met the current requirements in the G-8 Methodology.

Water Temperature - Based on concerns about the maximum allowable discharge concentration (MADC) of Active Substances which may not be guaranteed under extremely cold water conditions, since the reaction rate between AS and the neutralizer is reduced at lower temperatures, there was consensus that the Guidelines should be revised to check that the control scheme for the neutralization process is adequate to maintain the total residual oxidant (TRO) dose and the MADC in full-scale systems at all times and in particular to avoid unacceptable TRO levels at the beginning of discharge and under extreme low temperatures (a range from 0℃ to 40℃ was agreed in principle).

Viable Organism Determination - While there was some agreement on a revised definition, discussions continued on retaining the existing definition with a provision that allows for alternative methods to determine viability recognizing that methods evolve over time. Thus, a revision of the Guidelines would focus on the framework for accepting methods as opposed to approval of the methods themselves. Work remains in determining a suitable way forward.

Test Water Composition – It was recalled during discussions that the Guidelines do not specify the composition of the test water with respect to the concentrations of total suspended solids and particulates and dissolved organic carbon. Accordingly, the suitability of the criteria to reproduce the worst cases for these parameters as they would appear in natural water under extreme conditions was brought into question. There remains uncertainty if standard test organisms should be specified for the test water due to a lack of information and data available. If their use is supported, then it should be supplemented by robust procedures, processes and guidance, including validation and standardization of their use. Further work is needed, in particular, to determine the appropriate level of relevant constituents in test water with respect to conditions normally encountered in worldwide operation.

Scaling Effects - BWM.2./Circ.33 provides guidance to scale the results from a tested system to accommodate a higher or lower treatment rated capacity pursuant to approval.

A combination of land-based testing and/or computational fluid dynamics instead of shipboard testing is allowed for a representative number of capacities taking into account the type of treatment technology. There was agreement that a representative number of capacities, adjusted for the type of treatment technology, should be clearly articulated to facilitate consistency and universal application.

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Testing Facility Validation – While there was agreement to use the United States Environmental Technology Verification (ETV) report template as a basis for developing a test template under the Guidelines, further work is required to take into account the practices of test facilities. In this regard, a D-2 Implementation Study by the IMO suggests that testing and type approval generally follow the Guidelines. However, the Guidelines allows for interpretation and use of "best judgement" which could result in several differences in the approvals granted. In particular, where testing methodologies may not be validated, or there is a variation of test water conditions, or different approaches are utilized for the sampling and assessment of range of salinity, significantly differing conclusions on system performance can result. There was tentative agreement that testing facilities should have implemented appropriate quality assurance and control measures that are approved, certified and audited by an independent accreditation body, or to the satisfaction of the Administration, based on recognized standards. To help progress matters, a proposed revision of the Guidelines from the United States based on their ETV is expected to be submitted for consideration.

Future Work - In order to complete the revisions to the Guidelines during MEPC 70 (24-28 October 2016), the Committee agreed to re-establish the Correspondence Group on the review of Guidelines and to establish an intersessional working group to be held 17-21 October 2016. On agreement of the revised Guidelines, the Committee will then decide if they should become mandatory or remain as a recommendation.

BWT System Operation

The Committee considered the findings of IMO's Study on the implementation of the ballast water performance standard described in regulation D-2 of the Convention. Operational performance of type approved systems installed onboard ships was evaluated through an online survey and data collection of the systems' technical, mechanical, biological and environmental reliability and efficacy. Data for 122 ships was collected by IACS which represents 5% of the estimated 2,410 ships equipped with type approved systems.

Some key findings of the survey are summarized as follows:

- systems are not being used during routine ballasting operations;
- while technical/mechanical performance is occasionally checked, regular monitoring of system performance does not occur;
- the quality of training and documentation normally provided by the system's manufacturer is unknown and in some cases manuals may not have been provided; and,
- difficulties encountered focus mainly on sensors, controls, piping, valves and filtration.

Draft Amendments of BWM Convention

The proposed amendments to regulation B-3 of the BWM Convention, which reflect the implementation scheme in resolution A.1088(28), were drafted for consideration during this session. The draft amendments to regulation B-3 refer to the date of the first renewal survey for the ship associated with the International Oil Pollution Prevention (IOPP) Certificate of MARPOL Annex I.

The Committee approved the draft amendments to regulation B-3, but circulation of the amendments for formal adoption will not occur until entry into force (EIF) of the BWM Convention. Consideration of the amendments for formal adoption would then occur at the first MEPC meeting held at least six months following entry into force (EIF). A summary of the applicable standards (D-1: ballast water exchange, and D-2: the biological standard) is provided below in Table 1.

Ship Construction date	< EIF	≥ EIF
Standard Applied On/After EIF	D-1 or D-2	D-2
D-2 Applied not later than the First MARPOL IOPP Renewal Survey after EIF	D-2	D-2

Table 1 – Draft Implementation Scheme

Final Approvals Granted

It was reported that 65 ballast water management systems have been type approved to comply with the Convention's D-2 biological standard. Final approval was granted to 3 systems.

ECS-HYCHLORTM System

Submitted by Republic of Korea (MEPC 69/4), this system consists of filtration to remove organisms and suspended matter larger than 75 µm and side-stream electrochlorination unit to inject total residual oxidants (TRO) into the ballast water at a concentration of not more than 9.5 mg/L as Cl_2 during treatment. This is less than the 10mg/L concentration which requires corrosion tests to be carried out. Treatment of the water is immediate and does not require any holding time to achieve the required efficacy. Oxygen gas, produced at the anode and hydrogen gas produced at the cathode are removed by the gas separation unit. Prior to discharge, the treated water is neutralized with sodium thiosulfate so that the concentration is not more than of 0.1 mg/L as Cl_2.

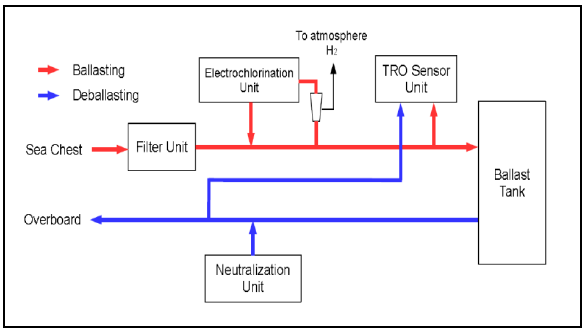

Fig 1 – ECS-HYCHLOR™ Schematic

NK-Cl BlueBallast System

Submitted by Republic of Korea (MEPC 69/4/1), this system treats ballast water with an active chemical sodium dichloroisocyanurate (NaDCC). The NK-Cl System consists of a NaDCC storage and dissolving system; an injection system; and neutralization. The NaDCC concentration is maintained at not more than 15 mg/L as Cl_2 during treatment.

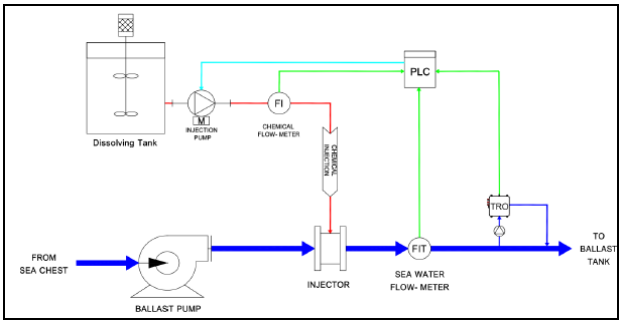

Fig 2 - NK-Cl BlueBallast Deballasting Process

Corrosion tests as specified by IMO using 15 ppm of TRO concentration did not show any adverse effect on the ships or pipelines, except on uncoated steel. Prior to discharge, the treated water is automatically neutralized with sodium thiosulfate so that TRO concentration is not more than of 0.2 mg/L as Cl_2. The NK-Cl BlueBallast System Filtration does not used for treatment.

ATPS-BLUEsys

Submitted by Japan (MEPC 69/4/2), this system injects sodium hypochlorite generated by the electrolysis unit at a concentration of 12 mg/l as Cl_2. The Stirring Device enhances the disinfection performance by agitating the treated ballast water immediately after the generation of the Active Substance such that there is no minimum holding time to achieve the required efficacy. Filtration is not used for treatment. Ballast water is discharged immediately after treatment after it is neutralized with sodium thiosulfate to not more than 0.2 mg/L as Cl_2.

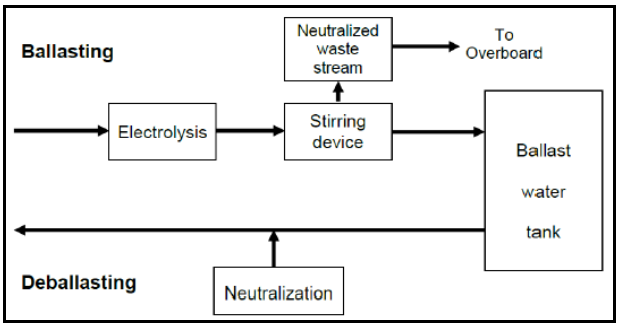

Fig 3 – Schematic Diagram of ATPS-BLUEsys

AIR POLLUTION AND ENERGY EFFICIENCY

Operational efficiency standards

The Committee approved draft amendments to MARPOL Annex VI which, if adopted at the next session of the MEPC in October 2016, will establish a mandatory requirement for all ships of 5000 GT and above on international voyages to collect data related to fuel consumption beginning as early as 1 January 2019. At the end of each calendar year, the collected data will be required to be aggregated into annual values, and reported to the ship's flag Administration (or RO acting on its behalf when duly authorized) for subsequent transmission to a central database managed by the IMO.

In addition to fuel consumption data for each type of fuel used onboard the ship (HFO, MGO, LNG, etc.), information regarding distance travelled and service hours as a proxy for transport work will also need to be collected.

The regulations will require each ship to update its SEEMP prior to the beginning of the first reporting period, in order to document the methodologies that will be used for collecting the required data and reporting that data to the flag Administration. A correspondence group has been established to prepare revisions to the SEEMP Guidelines (MEPC.213(63)) that will provide guidance for developing the data collection and reporting methodologies for the ship. Several approaches to collection of fuel consumption data are under consideration. The linear relation of each approach against data measurement attributes such as accuracy, complexity and cost are depicted in Figure 4. The correspondence group was also tasked clarify and further define the proxy data that needs to be collected (e.g. berth to berth, hours not at berth).

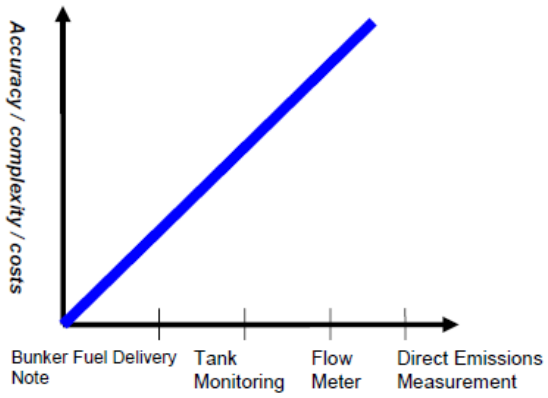

Fig 4 – Simplified relationship between fuel-monitoring approaches and goal-based attributes

Additional supporting guidelines will also need to be developed over the next several sessions to support the draft amendments, once adopted, and address items such as: data verification procedures, standard methodologies for transmitting the annual data, management of the IMO database, and assessment of ships registered with a flag Administration that is not a Party to MARPOL Annex VI.

The regulations will also require a ship to be issued a Statement of Compliance when the ship submits the required data to the Administration and the data has been verified. Additional provisions in the regulations were added to address instances where a change of ownership and/or change of flag takes place within a calendar year. In such a case, the reporting and certification responsibilities are to be split between the respective Administrations for their corresponding reporting periods within the calendar year in a manner to ensure confidentiality of collected data is maintained.

Engine Certification Electronic Maps

Recognizing that the operational profile of modern electronically controlled engines can be programmed to behave differently for various operational conditions, the Committee considered a proposal on the need for guidelines for the operation of engines with more than one engine operational profile.

Such different engine settings are defined as "Maps" which could be optimized for fuel consumption, e.g. low load and high load operations. Some members expressed their concern relative to the possibility of an increase of NOx emissions when the engine operates at certain "Maps".

While opinions were split within the Committee, industry interventions informed the Committee that engines already have more than one certified electronic map, for example, for the application of dual fuel operation, SCR operation for Tier III, etc. To resolve matters, the Committee decided to refer the documents to the 4th session of the PPR Sub-Committee, to be held in January 2017.

GHG Reduction

The Committee, noting that current global climate change efforts developed under the UNFCCC are not suitable for the shipping sector, continued discussion of the shipping sector's mitigation potential and abatement costs in trying to determine its fair share towards achieving the global goal to limit "*the increase in the global average temperature to well below 2℃ above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5℃ above pre-industrial levels*" as per the UNFCCC Paris Agreement 12 December 2015. It has not yet been concluded if this effort should be initiated in parallel to the three-step approach for further technical and operational energy efficiency measures (data collection, analysis and decision making).

Otherwise, it should wait until the first two steps have been completed, taking into account the UNFCCC representative's view that the correct time to hold a policy debate and to make an informed decision should be on the basis of the data collected and analyzed in steps 1 and 2.

The Committee is aware that in order for IMO to remain credible, a realistic work plan that considers social, economic, technical and environmental impacts in a balanced manner needs to be developed. In light of the above, the Committee reiterated its endorsement of the three-step approach and agreed to establish a working group at MEPC 70 to undertake an in-depth discussion on how to progress the matter.

EEDI Review

The Committee considered an Interim Report on the review of technological developments required by Regulation 21.6 of MARPOL Annex VI, which recommended no change to the time periods and reduction rates of future Phases. A number of Delegates expressed the view that a large number of ship types could comply with the Phase 2 criteria by using a variety of energy-saving technologies currently available.

Averaged results for the EEDI values of the ship types subject to Phase 0 (as of 27 May 2015) evaluated against the Phase 2 criteria are summarized in Table 2.

Ship Type	Actual EEDI value vs Phase 2 Required EEDI (average)	Phase 0 Ships evaluated against Phase 2 Required EEDI	% of Phase 0 ships that already meet Phase 2 Required EEDI
Container	42% below	14	100%
General Cargo	46% below	7	100%
Tanker	27% below	26	88%
Gas Carrier	28% below	7	100%
Bulk Carrier	19% below	128	50%
Ro-Ro Cargo	n/c	1	0%
Others	n/c	n/c	n/c
n/c – not considered			

Table 2-EEDI Phase 0 vs Phase 2 Comparison

In light of a number of questions raised on the extent of the data in the EEDI database, the Committee agreed that the decision would be deferred to MEPC 70 after considering the final report from the re-established correspondence group.

FUEL OIL ISSUES

Availability of 0.50% Sulphur Limit Fuel

Under the provisions of MARPOL Annex VI, Regulation 14, the availability of fuel oil to meet the global 0.5% sulphur limit in 2020 or 2025 is to be determined and reviewed by 2018, so the Committee may decide the feasibility to comply with this standard by 2020, or if the compliance date should be extended to 2025.

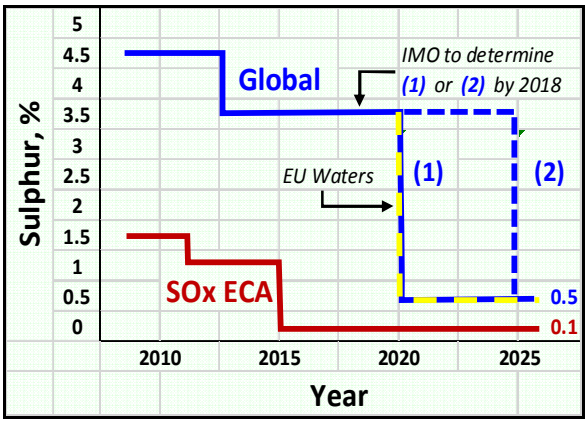

Fig 5 – SOx Emission Limits

A Steering Committee (regionally represented by Member States) began its review of the availability of 0.5% sulphur fuel oil under terms of reference agreed at MEPC 68 with a view to submission of a report to MEPC 70 to be held in October 2016. The demand for compliant fuel oil is to be determined based on bottom-up modeling (fuel consumption and emissions from individual ship movements) and the supply of compliant fuel oil will include geographical fuel availability based on current and projected refinery capacity. During MEPC 69, the Committee noted the progress of the Steering Committee and agreed in principle that a final decision on the implementation of the 0.5% fuel sulphur limit will be made at MEPC 70.

Fuel Oil Quality Control

In May 2015, MEPC 68 considered draft 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. The draft guidelines proposed a three-level approach to address fuel oil quality control.

During MEPC 69, the Committee considered the progress of the correspondence group established during the last session, and the further development of the three-level approach to the guidelines covering fuel oil suppliers, fuel oil purchasers and Member/Coastal States. However, there was divided opinion on the adequacy of the legal framework under MARPOL Annex VI in this regard.

The Committee's decision at this stage was to reestablish the correspondence group to further develop the best practices guidelines for fuel oil purchasers and Member/Coastal States, and to report to MEPC 71 in 2017. However, it was decided not to further discuss the adequacy of the legal framework.

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 of fuel oils used by the marine industry.

For 2015, the average sulphur content of the tested residual fuels decreased slightly from 2.46% to 2.45%. The three-year rolling average of the sulphur content for residual fuel decreased to 2.45% from 2.47% in 2014.

For 2015, the yearly average sulphur content of the tested distillate fuels has decreased from 0.12% to 0.08%. The three-year rolling average of the sulphur content for distillate fuel decreased to 0.11% from 0.13% in 2014.

Figure 6 shows the distribution of sulphur content in residual fuel tested for 2015.

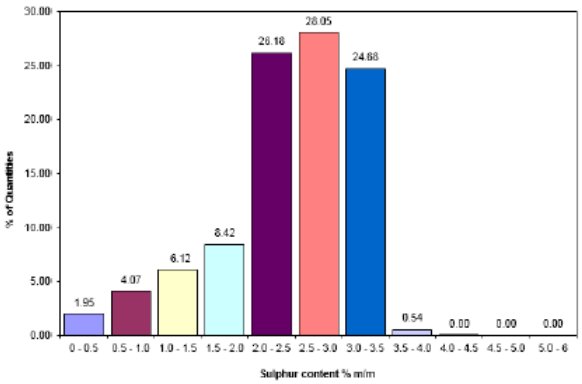

Fig 6 – Sulphur % of Residual Fuel Tested, 2015

MISCELLANEOUS

Testing of Gas Fuelled & Dual Fuel Engines

Amendments to the NOx Technical Code which enable certification of gas fuelled and dual fuel engines were adopted by resolution MEPC.272(69). The amendments include revisions to the Parent engine test report and test data form. The Committee also agreed that the revised model form for the engine test report is only applicable to engines installed on or after the entry into force date of the amendments, 1 September 2017.

TIER III engines

The Committee adopted resolution MEPC.271(69) which contains amendments to MARPOL Annex VI regulation 13.5 (Tier III) to mandate the recording of specific information for marine diesel engines which are:

- installed on board ships constructed on/after 1 January 2016 operating in the North American or US Caribbean Sea ECA, and are certified to both Tier II and Tier III;
- installed on board ships constructed on/after the associated entry into force date for any new NOx Emission Control Areas that may be designated in the future; or
- certified to Tier II only (in the case of replacement engines only, if it is not possible for such a replacement engine to meet the standards of Tier III.

Information is to be recorded in a logbook prescribed by the Administration. The status (on/off) of Tier III engine operation, together with the date, time and position of the ship is to be recorded:

- at entry into and exit from a NOx emission control area; or,
- when the on/off status changes within a NOx emission control area.

The above is similar to the requirement in MARPOL Annex VI, regulation 14.6, for recording fuel oil changeover prior to entry into, and departure from, an emission control area.

Sewage Discharge Standards Adopted

Resolution MEPC.274(69) was adopted and provides amendments for the sewage discharge standards for passenger ships, carrying more than 12 passengers, within a designated *Special Area*.

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The Amendments to MARPOL Annex IV Regulation 11.3, which enter into force on 1 September 2017, specify that a new passenger ship is one which:

- the building contract is placed on or after 1 June 2019, or in the absence of a building contract,
- the keel of which is laid, or which is in similar stage of construction, on or after 1 June 2019; or
- delivers on or after 1 June 2021, regardless of the building contract or keel laying date.

An existing passenger ship is not a new passenger ship.

The discharge of sewage from a passenger ship within a Special Area is prohibited, except when the ship has in operation an approved sewage treatment plant certified by the Administration to meet the "*2012 Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants*" as provided for in resolution MEPC.227(64), including the standards of Section 4.2. This standard limits the discharge of phosphorus and nitrogen and therefore the input of nutrients which causes eutrophication (the excessive richness of nutrients causing dense growth of plant life and consequential death of animal life from lack of oxygen).

Corresponding amendments to the Form of the International Sewage Pollution Prevention Certificate are also included to document compliance of sewage treatment plants that are approved under the "2012 Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants".

The Baltic Sea Area (Figure 6), one of the largest brackish water bodies in the world, is also one of the most intensively trafficked sea areas in the world with respect to the number and the size of ships which has increased during recent years. The increasing traffic of passenger and cruise ships, and with it the increase of sewage generated on board, significantly contributes to eutrophication of when discharged into this unique marine ecosystem.

Fig 6 – Map of Baltic Sea Area

The Committee, in recognizing the above, also adopted resolution MEPC.275(69) which establishes the Black Sea as a Special Area under MARPOL Annex IV. The associated discharge compliance dates for the Baltic Sea Special Area are 1 June 2019 for new passenger ships and 1 June 2021 for existing passenger ships with one exception.

An extended compliance date of 1 June 2023 is provided for existing passenger ships that:

- are en route in the Baltic Sea Special Area;
- proceed directly to ports under the jurisdiction of the Russian Federation within the Baltic Sea Special Area (i.e. ports east of longitude 28° 10' within the special area); and
- depart the Special Area without making any other port calls within the Special Area.

UNIFIED INTERPRETATIONS

Sewage Treatment Plants

For application of resolution MEPC.227(64) "2012 Guidelines on implementation of effluent standards and performance tests for sewage treatment plants", the Committee agreed that the phrase "installed on or after 1 January 2016" is interpreted as follows:

- Installations on board ships the keels of which are laid or which are at a similar stage of construction on or after 1 January 2016.
- For other ships, installations with a contractual delivery date to the ship on or after 1 January 2016 or, in the absence of a contractual delivery date, the actual delivery of the equipment to the ship on or after 1 January 2016.

The above interpretation will be included with amendments to resolution MEPC.227(64) to be submitted for consideration at MEPC 70.

Ship Energy Efficiency Management Plan

New MEPC.1/Circ.863 clarifies that a ship which is not normally engaged on international voyages but which, in exceptional circumstances, is required to undertake a single international voyage, may be exempted by the Administration from any of the requirements in chapter 4 of MARPOL Annex VI, including the need to carry onboard a Ship Energy Efficiency Management Plan.

Oily Bilge Water Alarm Tests

According to paragraph 4.2.11 of the annex to resolution MEPC.107(49), the accuracy of the 15 ppm bilge alarms should be checked at IOPP renewal surveys according to the manufacturer's instructions. The Committee approved in principle the interpretation of this provision as contained in IACS UI MPC 127 as follows, taking into account resolution A.1104(29) "Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2015":

- The validity of the calibration certificate should be checked at IOPP annual, intermediate and renewal surveys.
- The accuracy of 15 ppm bilge alarms is to be checked by calibration and testing of the equipment conducted by a manufacturer or persons authorized by the manufacturer and should be done at intervals not exceeding five years or within the term specified in the manufacturer's instructions, whichever is shorter.

Relevant draft amendments to resolution MEPC.107(49) incorporating the above interpretation will be submitted for consideration at MEPC 70.