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Marine Environment Protection Committee's 57th Session (31 March – 4 April 2008)

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

The 57th session of the Marine Environment Protection Committee met in London from 31 March to 4 April 2008 under the Chairmanship of Mr. A. Chrysostomou of Cyprus. Significant matters progressed are summarized below.

AIR EMISSIONS

Approved Revision of MARPOL Annex VI

A significant step was taken by MEPC 57 on the finalization of the revision of MAPROL Annex VI, in particular the phased-in reduction of NOx and SOx as well as the extended application of NOx limits to existing engines. The Committee used as a basis the draft regulations agreed in February 2008 by the BLG Sub-Committee together with the report of the Informal Cross Government/Industry Scientific Group of Experts. At the conclusion of MEPC 57, the Committee approved draft revisions of MARPOL Annex VI which provides the opportunity for MEPC 58 (6-10 Oct 2008).to adopt the revisions and an entry into force date under the tacit acceptance procedure. The following details the significant aspects of this revision.

Proposed SOx Emissions

Three sulphur cap options (Figure 1, below) agreed by the 12th Session of the BLG Sub-Committee served as the starting point for discussions during MEPC 57.

	Global (1 January)			ECA (1 January)			
Option / EIF	< 2012	2012 ≤ < 2015	≥ 2015	< 2010	2010 ≤ < 2012	2012 ≤ < 2015	≥ 2015
Global w/ Temp ECA	4.5%	1.0%	0.5%	1.5% or EGCS[1]		*No longer enforce as global governs*	
Global w/ ECA	4.5%			1.5% or EGCS[2]		0.10 or EGCS[2]	
Global w/ ECA & Micro-ECA	4.5	3.0		1.5%or EGCS[3]	1.0% or EGCS[3]	0.5% or EGCS[3]	
				0.10% or EGCS[4]			

EGCS Performance (g SOx/kWh)				
1 Jan	<2010	≥2010	< 2012	≥ 2012
EGCS[1]	6.0			n/a
EGCS[2]	6.0			0.4
EGCS[3]	6.0	4.0		2.0
EGCS[4]	0.4			

Figure 1 – Preliminary SOx Proposals

In Figure 1, above, ECA is an Emission Control Area where tighter controls are placed on SOx, NOx, and particulate matter than that applicable globally. A Micro-ECA is an area not more than 24 nmi offshore where emission controls are specified. The EGCS is an Exhaust Gas Cleaning System fitted to engines to reduce the amount of the total emission of SOx.

Numerous views and arguments relative to the above three options were presented and discussed during MEPC 57. These included:

- marine fuel supply imbalances;
- the availability of compliant fuel which is linked to the ability of refineries to upgrade their systems/processes to produce low sulphur distillate;
- the continued decline of the three-year rolling average of sulphur content in marine bunkers which for 2005 to 2007 is at 2.57%;
- the unprecedented impact that a change-over from residual marine fuel to distillate on one particular date could have on the fuel markets versus a gradual expanding and/or increasing number of SECA's which provide for the most measurable benefit in areas where ships operate close to centers of population and close to shore;
- the pros and cons of short term SOx emission reductions considering existing technologies and minor upgrades versus long term more extensive emission reductions so as to provide industry with certainty for investment;
- the estimates of increasing human mortality due to air pollution from ships;
- emission standards that afford multiple solutions for compliance as opposed to a mandatory global switch to distillate fuels; and
- the additional energy and crude oil consumption as well as overall CO2 emissions estimated in producing low sulphur marine fuel and how to dispose of the extra sulphur and coke produced.

Approved SOx Emission Standards

After very extensive discussions by a Working Group over a three day period, the Committee agreed with the draft limits which are summarized Figure 2.

	Global Control (1 January)		Emission Control Area	
Entry Into Force Date	≥ 2012 to < 2020/25*	≥ 2020/25*	≥ 1 Mar 2010 to < 1 Jan 2015	≥ 1 Jan 2015
Limits	3.5% +	0.5% +	1.0% +	0.10% +

* Note: Effective year (2020 or 2025) will be decided in 2018
\+ Alternative Technology is acceptable and includes Exhaust Gas Cleaning System and onboard blending

Figure 2 – Approved SOx Emission Limits

The regulations require that a group of representatives with expertise in the fuel oil market and appropriate maritime, environmental, scientific, and legal expertise complete a review of the 0.10% sulphur limit by 2018 to determine if the global market supply of 0.10% fuel oil is commensurate with the demand for that oil. If, based on the information developed by that group of experts, Parties to MARPOL VI decide that it is not possible for ships to comply by 1 January 2020, then the effective date for 0.10% sulphur standard defaults to 1 January 2025.

It is worthy of note that the International Petroleum Industry Environmental Conservation Association (IPIECA) drew the Committee's attention to the fact that the oil industry did not expect that sufficient fuel at 0.10% and 0.50% sulphur were expected to be available in all regions by the desired dates of 2015 and 2020, respectively. The International Chamber of Shipping drew attention to the potential for some disruption of the balance between inter-modal competition and internal fuel markets based on the decisions made at this session of MEPC.

Emission Control Areas

The Baltic Sea area and the North Sea will, upon entry into force of the revised MARPOL Annex VI, become Emission Control Areas, ECAs. Ships will therefore be subject to the limits in those areas as summarized in Figure 2.

It is noted that the EU Directive 2005/33/EC, which is to be reviewed in 2008 with the view to further reduce land based emissions, introduces a 0.10% maximum sulphur requirement for fuels used by ships at berth in EU ports as of 1 January 2010. This limit is 10 times lower than the above 1.0% standard approved for the ECAs from 2012 to 2015.

Given the provisions for ECAs under the revised Annex VI, it remains to be seen if Europe proposes to introduce new ECAs with reduced sulphur caps at a later stage. In this regard, there was not adequate time to develop criteria for designation of ECAs. This task is scheduled to be completed at MEPC 58 in October 2008.

Exhaust Gas Cleaning Systems

Under current Annex VI, an alternative to using fuel oil with a 1.5% sulphur limit when operating in a SOx emission control areas (SECA), is the fitting of an approved Exhaust Gas Cleaning System (EGCS). The EGCS must reduce the total emission of SOx to 6.0 g SOx/kWh or less, calculated as the total weight of sulphur dioxide emission.

MEPC 53 agreed in July 2005 that a more specific criteria for EGCS-SOx washwater discharge is needed than that currently contained in resolution MEPC.130(53) (i.e., waste streams shall not be discharged into enclosed ports unless it can be documented that there is no adverse impact on the ecosystems in such waters). Based on a two year review, the Committee revised MSC.130(53) so as to incorporate prescriptive interim washwater discharge criteria. Subject to a review by the Joint Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP), the revision is scheduled to be adopted at MEPC 58 in October 2008. When adopted, it is considered that the standard will promote development of EGCS which shows promising results from trials already carried out for equipment installed in a number of ships.

The draft revision still contains guidelines for the design, testing, survey and certification of exhaust gas cleaning-SOx systems, including the need for an approved SECA Compliance Plan. Also, the two options for certification that were included in resolution MEPC.130(53) are maintained: Scheme A, Type Approved Systems; and Scheme B, Continuously Monitored Systems.

The revised washwater discharge standard addresses oil (using polycyclic aromatic hydrocarbons as an indicator), pH, heavy metals, and nitrates for operation of the EGCS in ports, harbors, and estuaries where the greatest concern exists.

The standard is an interim measure and may be revised as more data becomes available on the contents of the discharged washwater and its potential effects on the marine environment, taking into account any advice given by GESAMP.

There exists a provision for the port facilities receiving washwater that is different than the reception facilities required for oil residues under MARPOL Annex I. If a particular port or terminal of a Party is remotely located or lacks the infrastructure necessary to manage and process those substances, then that Party shall communicate such situations to IMO so that appropriate action can be taken by other Parties.

Volatile Organic Compounds (VOCs)

Upon entry into force, the revised Annex VI will require that a Volatile Organic Compound (VOC) Management Plan be approved for tankers carrying crude oil which arrive at a port or terminal under the jurisdiction of a MARPOL Annex VI signatory Party. The Plan is to provide written procedures for minimizing VOC emissions during loading, sea passage, and discharge of cargo. VOCs generated by crude oil washing are to be included. A person responsible for implementing the Plan is to be identified.

Fuel Oil

Because of the significant reductions in sulphur content of fuel oil agreed, new provisions have been included in Annex VI which require Parties to take all reasonable steps to promote the availability of compliant fuel oils in its ports and terminals. Parties are obligated to inform IMO of that availability.

Availability

If a Party finds that a ship is using non-compliant fuel oil, the Party is entitled to require the ship to present a record of the actions that it has taken in attempting to achieve compliance and to provide evidence that it attempted to purchase compliant fuel oil in accordance with its voyage plan. If the compliant fuel oil was not made available during that planned voyage, evidence can be required to show the attempts that were made to locate alternative sources for such fuel. The Party is not entitled to require the ship to deviate from its intended voyage or to delay unduly the voyage in order to obtain compliant fuel oil.

Sampling

Fuel oil quality is still required to be reported by the bunker delivery note and to maintain in its control a representative sample of the delivered fuel oil that was sampled based on the Guidelines in resolution MEPC.96(47).

Port State control may require that a representative bunker sample be analyzed, in which case it is to be done in accordance with newly developed verification procedures. These procedures check that the same results (within a certain level of reproducibility) are achieved for two samples of fuel oil. If the average of the results taken from both samples is equal to or less than the required limit, then the fuel oil is considered acceptable. If the average is above the limit, but within a specified tolerance, then a second verification test is to be carried out. If the average from the first verification is not within the specified tolerance, the fuel oil is considered non-compliant.

Quality

After significant discussion on whether fuel oil quality should be determine by IMO or ISO, the Committee did not reach a decision, but agreed to request ISO to review a preliminary list of indicative fuel oil characteristics and identify whether the parameters are appropriate with respect to air quality, ship safety, engine performance and crew health. ISO is also to recommend limits for these characteristic and advise the extent that the limits could be taken into account in any revision of the ISO standards.

SHIP RECYCLING

Draft Convention

The Committee continued its development towards finalizing a text of the new International Convention for the Safe and Environmentally Sound Recycling of Ships. The complexities of issues relating to registration and de-registration of ships heading for recycling continued to present challenges. The Committee acknowledged that it would not be possible to develop a simple provision to address all the possible scenarios. One scenario, however, under consideration is when a “cash buyer” (where neither the shipowner nor the ship-recycling facility has legal ownership of the asset) purchases a ship and no longer flies a flag of a State for a limited period immediately prior to delivery to the recycling facility.

It was tentatively agreed that it might be necessary to expand the duty of a shipowner to communicate to the competent authority of the recycling State in addition to the flag Administration when the ship is to be recycled without a flag.

Agreed Revisions

The Committee agreed to include self-elevating platforms (jackup drilling rigs) in the definition of "ship", thereby making these rigs subject to the Convention along with submersibles, floating craft, floating platforms, floating storage units (FSUs), floating production storage and offloading units (FPSOs), and any other vessel operating or having operated in the marine environment whether stripped of equipment or under tow.

The provision calling for Parties to be subject to a mandatory audit to ensure full compliance with their obligations under the Convention was deleted. Support still remains, however, for the development of a resolution recommending that Parties undergo a voluntary audit to check their implementation of the provisions of the Convention. This is expected to be considered further at MEPC 58 in October 2008.

In light of action taken in February by the IMO's Design and Equipment Sub-Committee to revise SOLAS regulations to prohibit all new installations of asbestos onboard ships, the MEPC agreed to include asbestos in all installations onboard new ships in the List of Controls of Hazardous Materials (Appendix 1 of the draft Convention). As the current list now stands, it controls asbestos, ozone-depleting substances, polychlorinated biphenyls and organotin compounds

The Certification Process

New and existing ships are regulated. Each new ship is to have an Inventory of Hazardous Materials verified by the Administration or by an authorized organization. The inventory identifies the hazardous materials listed in Appendices 1 and 2 to the draft Convention that make up the ship's structure and equipment, their locations and approximate quantities in order to clarify the extent that such material was prohibited and/or restricted. The inventory is to be developed, as far as is practicable, for existing ships not later than five years after the entry into force of the Convention, or before going for recycling if this occurs earlier.

After several submissions by IACS, the MEPC finally agreed to amend the Convention to require the preparation of a visual/sampling check plan for existing ships. Based on widely accepted draft guidelines which are under development, the visual/sampling check plan is to be developed by an expert organization authorized/recognized by the Administration.

The Visual/Sampling Check Plan is composed of the following three lists:

- equipment, system and/or area for visual check
- equipment, system and/or area for sampling check
- equipment, system and/or area classed as potentially containing hazardous material.

Such a plan was considered by the Committee to be an essential tool to facilitate the development of the Inventory of Hazardous Material for existing ships where it is anticipated that sufficient documentation may not exist on structure and hardware containing hazardous material or potentially containing hazardous material.

For all ships, a Certificate on Inventory of Hazardous Materials -- with validity not exceeding five years -- is to be issued after approval of the inventory and after satisfactory completion on an initial survey verifying that the ship complies with the inventory. Renewal surveys are to be carried out prior to expiration.

The above periodic surveys are supplemented by additional surveys carried out after a change, replacement, or significant repair of the structure, equipment, systems, fittings, material and arrangements occurs. Satisfactory completion of the final survey verifies that the ship complies with the approved inventory and that the Ship Recycling Plan has been developed by an authorized ship recycling facility that complies with the requirements of the Convention. This is carried out prior to the ship being taken out of service and before the recycling of the ship has started. Afterwards, a Ready for Recycling Certificate is issued, valid for up to three months. The Administration can extend this certificate for a period to permit the ship to complete a single voyage to the recycling facility. This certificate supplements the Certificate on Inventory of Hazardous Materials.

Issues to be Resolved

As is normally the case with new international treaties, the entry into force provisions are ultimately decided at the diplomatic conference established to adopt a treaty when States have a clear picture of their obligations and responsibilities under the treaty. This draft Convention, however, is unique in that its effectiveness is highly dependent on the capabilities of facilities to recycle ships in an environmentally responsible manner

Therefore, the Committee is considering entry into force provisions which use the conditions of many other IMO Conventions (e.g. a minimum number of States having an aggregate tonnage threshold) plus a factor based on the ratio of ship recycling capacity to the combined tonnage of merchant shipping. No figures were included at this session, but it was recognized that clarity and precision on how the recycling capacity was to be objectively determined is needed in the Convention.

Approval of the Ship Recycling Plan (e.g. the plan describing how the ship is to be recycled by the recycling facility) prior to the final survey is another unresolved issue. The obstacle is that the plan itself requires the Inventory of Hazardous Materials for its development. This inventory, however, cannot be completed and approved until the final survey is carried out and verifies that the ship carries a completed inventory and is in a condition for issuing the Ready for Recycling Certificate.

Another outstanding item concerns the capability of the Administration to verify that the ship complied with the Convention at the final survey. A proposal still to be considered is one which more precisely describes the responsibility of the Administration in ensuring that a Ship Recycling Plan has been developed for the ship and, where required, that it has been approved by the competent authority of the recycling State.

Consensus was not achieved on the introduction of threshold values for hazardous materials contained in Appendix 2. Although there was considerable support for this proposal, put forward by IACS, most of the group recognized that it would be difficult to provide such values at the present time and considered that threshold values could be addressed in relevant guidelines, which are under development.

Agreed Work Plan

The agreed work plan calls for the MEPC 58th session in October 2008 to complete a comprehensive review of each article and regulation of the draft Convention so that it can be finalized and circulated for the planned diplomatic conference scheduled in May 2009 in Hong Kong. MEPC 59, tentatively scheduled for July 2009, is expected to adopt the final draft of the Guidelines for Safe and Environmentally Sound Ship Recycling, including provisions for the development of an Inventory of Hazardous Materials, survey and certification, port state inspection of ships, authorization of ship recycling facilities, conducting safe and environmentally sound ship recycling, and development of the Ship Recycling Plan

GREEN HOUSE GASES

Developments to Reduce GHG

Building on Assembly resolution A.963(23), the MEPC continued its work to identify and develop the possible mechanisms and approaches on technical, operational and market-based measures to limit or reduce Greenhouse Gas Emissions (GHG) from new and existing ships.

This effort is driven by wider international efforts aimed to combat climate change under the United Nations Framework Convention on Climate Change (UNFCCC) process by proactively addressing the principles and objectives that are fundamental to the Roadmap agreed at the December 2007 Bali Conference. This Roadmap requires Governments to negotiate a new legally binding treaty in two years time to combat global warming. A time frame and scope for reaching a climate change agreement in 2012, when the Kyoto Protocol expires, is also established. As the Roadmap itself does not include any explicit emission reductions goals or targets, industrialized nations are to set targets for GHG emission reductions

Due to the global scope of maritime business, as opposed to the more regionally-motivated efforts mentioned above, it was important for this session of the MEPC to make substantive progress and agree on key principles, so that the outcome could be brought to the attention of the UNFCCC subsidiary bodies which are scheduled to meet in June 2008.

Based on the outcome of MEPC 58 in October 2008, a comprehensive report is to be prepared for submission to the December 2008 UNFCCC Conference of Parties, in Poland. Then, based on the completion of IMO's update of its 2000 GHG work at MEPC 59 in July 2009, a position paper could be agreed to demonstrate to the December 2009 UNFCCC Conference in Copenhagen that a satisfactory regime to limit/reduce GHG emissions from marine bunker fuels would be in place.

Short-term Reduction Options

More time was needed to progress key principles, in particular with respect to the possible categorizing of measures for new and existing vessels. Although there was some agreement as to the short- and long-term reduction options available, it was recognized that many of the measures would require careful consideration and that guidelines would need to be developed by a group with expertise not available at this MEPC session.

Short-term options tabled at this session of MEPC are listed below together with their pros and cons:

- Optimizing Engine Performance - was considered as a voluntary measure so its effectiveness would be limited.
- Energy Efficiency Design and Management Plan – is comprised of an analytical tool to assess the CO_2 index of each new ship. It has the advantage of being able to accommodate both the design and the operational stages of shipping, but the options identified might not be economical unless targets were legally binding.
- On Shore Power Supply - could reduce GHG emissions depending on the power source for the electricity generation. However, GHG emissions could increase in cases where only a small demand exists.
- Wind Power - is considered to be relatively cost-effective depending on the techniques and construction required which can vary for different types of ships. But, implementation will require different skills and introduce navigational challenges.
- Voluntary CO2 Indexing – the exchange of such data could facilitate the development of policy solutions to set more effective and efficient fuel efficiency standards. Technical, scientific and industrial knowledge can increase as well as competition between less and more energy efficient ships. A shortcoming is that it is not likely to result in immediate and tangible reductions, unless external verification is implemented.
- Limiting refrigerant leakage – although additional maintenance and record keeping onboard is required, this is considered to be a cost-efficient measure. However, if not implemented globally, refrigerant could be purchased in countries where control is less stringent.
- Vessel Speed Reductions – acknowledging that speed is weather dependent and does not necessarily correlate with fuel use or GHG emissions, improved management and planning of ship voyages could lower GHG emissions, considerably. A 4% speed reduction is estimated to provide a 13% emission reduction. Conversely, speed reductions might require more ships or other means of transport to handle the same amount of goods which could cause a net adverse impact on the environment.
- Improved Port Traffic Control - optimized cargo handling operations and peak spreading programs at terminals could optimize berthing, mooring and anchoring operations. However, uncertainty exists with the degree of compliance with these voluntary measures and with the impact on emission reductions.
- Black Carbon & Nitrogen Oxide Reduction – would focus on engine measures that improve local air quality, but trade offs between reduced nitrogen oxides and black carbon versus CO2 emissions need further consideration.
- Voluntary commitments – such as efficiency improvements, differentiated harbour dues, fuel efficiency and IMO GHG index per ship could facilitate other incentives to distinguish a fleet, but this may not yield absolute GHG emissions reductions.
- GHG Emission Surcharge on Fuel Sold – would set a cap on total GHG-emissions from international shipping and introduce a charge on GHG-emissions based on fuel sold/purchased. A portion of revenues would be allocated to a fund under the control of IMO to improve GHG emissions.

A possible drawback is that the maritime sector could end up, in certain trades, being financially disadvantaged relative to shore-based transport modes.

Long-term Reduction Options

Several long-term options are under consideration and include:

- Ship optimization – is being studied in terms of reduced hull friction, propeller and power plant efficiency and in-engine improvements, such as fuel injection and heat recovery systems. These options were estimated by IMO's 2000 GHG Study to reduce GHG emissions by up to 30% for new ships, and up to 20% for existing ships. Questions remain on the economic feasibility and practicality of implementation.
- Alternative fuels - natural gas, biofuels, and fuel cell technology have the potential to significantly reduce GHG emissions from shipping. But, environmental sustainability overall is questionable due to deforestation, wetlands destruction and the potential for overall increase in GHG emissions in the manufacture of some alternative fuels.
- Mandatory CO_2-Design Index - would require new ships to have an index below an internationally defined benchmark. While such an index could stimulate and create an incentive for developing more efficient ships, immediate returns on improving the environment will not occur due to its application to new ships only.
- External CO_2 index Verification Scheme – implemented for all technical, operational and market-based measures would promote the development of new environmentally effective technologies. Significant hurdles remain including how the indexing is to address the amount, distance and time to move cargo taking into account ship routing, loading rates, partial load conditions and weather delays.
- CO_2 index & non-compliance penalty – this would directly reduce GHG emissions by imposing a penalty on ships that did not comply with a specified limit (gram CO_2/ton mile). Success would depend on the degree that the limit is fair and efficient for the broad range of vessels, cargoes and operating environments.
- Emissions Trading Scheme (ETS) - would require ship owners to obtain and have allowances for GHG emissions and to participate in a cap-and-trade system. ETS could be the favored option to reduce GHG emissions while generating significant revenue for the benefit of the maritime sector (e.g., research into emissions reductions). International agreement is needed on many issues including thresholds, baselines, recognition of past efforts, trading entity, compliance and scope of application (ship type and geographical scope). Other modes of transport would need to be considered to maintain equity between all transport modes.
- CO2 element in port infrastructure – would introduce differentiated harbor dues when GHG emissions standards were met. This can provide incentives to reduce emissions, but it is recognized that differentiated port dues are a very commercially sensitive issue which has proven difficult at the regional level, let alone on a global level.

Intersessional GHG Emission Meeting

An intersessional meeting to be held in Oslo, Norway, from 23 to 27 June 2008 has been tasked to further develop mechanisms having a GHG reduction potential.

One proposal to be further developed builds on the principles of ETS by establishing a global levy on marine bunkers for the primary purpose of acquiring CO_2 emission quotas through the purchase of CO_2 credits. Under this scheme, all ships engaged in international voyages would be subject to a bunker levy established at a given cost level per ton of fuel bunkered.

The prospect of a global levy/credits scheme contributing to a GHG emissions reduction from ships is considered to be promising, although it was noted that several aspects would needed further development.

Included are the practical implementation of a global levy scheme, the details of collecting and distributing levies and the potential for a modal shift in transport at the regional levels.

A second proposal considers an Emissions Trading Scheme and/or the concept of the Clean Development Mechanism (CDM) which is an arrangement under the Kyoto Protocol.

CDC allows industrialized countries with a GHG reduction commitment (identified as "Annex 1 countries") to invest in projects that reduce emissions in developing countries as an alternative to investing in more expensive emission reductions in their own countries. Such investments allow a net global GHG emission reduction at a much lower global cost.

Additionally, the Oslo meeting is to further develop CO_2 emission reduction schemes on two levels: an index for new ships and an operational indexing scheme based on the operational index guidelines (MEPC/Circ.471), which are to be revised in order to establish a methodology for a CO_2 emission baseline.

BALLAST WATER MANAGEMENT

Ballast Water System Approvals

Under the provisions of the BW Management Convention, the Committee granted "*Final Approval*" to one system and "*Basic Approval*" to four other ballast water management systems. Basic approval is required for systems using active substances in the treatment process and is required by IMO before land and shipboard testing is carried out pursuant to final approval by IMO and then type-approval by an Administration.

Basic Approvals Granted

OceanSaver® System (OS BWMS)

After pre-filteration at 50 microns, the water is hydrodynamically cavitated at such an intensity so as to rupture cell membranes and destroy particles and organisms by forcing them to rupture, collapse or collide with one another. Nitrogen supersaturation (typically less than 15% of the total water flow) is the next step which causes dissolved oxygen to be released leaving oxygen deficient water, thus severely affecting oxygen-dependent residual organisms. N2 demands are met either by on-board production using standard N2 membrane generators, as normally found on chemical tankers that work by filtering normal air, or by the less practical means of tanks storing shore-supplied N2. The final step ensures compliance for varying ballast water properties by applying electrochemical activation to a small portion of the flow thereby producing a disinfectant which is returned to the main flow. A recently installed system had a capacity of 2 x 600 m3/hr.

ClearBallast System

Basic approval was granted to this 3-step system which purifies water by removing target organisms and other objects through a combined filtration and active substance process. First, a flocculant is continuously injected into the piping of ballast water treatment equipment using three dedicated pumps. This causes suspended particles in the ballast water to aggregate into larger sized clusters, flocs.

Second, these flocs are then separated from the seawater using permanent magnets and then automatically transferred to the sludge tank by a conveyor. Finally, any residual flocs that were not removed by the magnetic separation are removed by filtration. The system can be scaled up with multiple sets of equipment installed commensurate with the amount of ballast water to be treated. The commercial process ranges from 50 to 10,000 m3/h of ballast water.

Resource Ballast Technologies System

Basic approval was granted to this system which uses mechanical cavitation, disinfectants (produced within the system) and physical separation (40-micron screen). The system can treat diverse water conditions such as high turbidity and polluted water, including that containing high levels of organic and mineral matter. Active Substances (Ozone and Sodium Hypochlorite) are added to facilitate cavitation. The cavitated bubbles implode producing a shock wave which kill the targeted organisms. This automated and remotely monitored system treats ballast water at rates from 320 to 1400 m3 of ballast water per hour. The 320 m3/hr system operates on normal shipboard supply (400 VAC, 60 Hz) and requires a 7 kW supply.

GloEn-PatrolTM System

This system operates in-line during the uptake of ballast water. The first stage significantly reduces sediment and some of the micro-organisms via a 50 micron filter installed on the discharge side of the ballast water pumps. A UV unit employs high-intensity, medium-pressure, ultra violet lamps which produces an active substance that destroys harmful aquatic micro-organisms and pathogens. Discharged ballast water is treated again by the UV unit to destroy any organisms which might have re-grown in the tanks during the voyage. Flow rates for the pilot plant range from 50 m3/hr up to 300 m3/hr.

Final Approval Granted

SEDNA® OCEAN System (with PERACLEAN®)

The MEPC considered the comprehensive information provided based on additional testing carried out since basic approval was granted in March 2006 and granted Final Approval for this system.

The first step of treatment involves physical separation provided by a hydro-cyclone separator followed by a compact, self-cleaning 50 micron filter. Secondary treatment consists of automatic doses of the chlorine-free disinfectant, PERACLEAN® which is effective against bacteria, fungi and viruses.

PERACLEAN® is specified in the IMDG Code under UN No. 3109, an organic peroxide Type F, liquid, with a classification of 5.2. Due to its explosive nature the temperature is monitored in special containers and a sprinkler system is installed in case the temperature exceeds 35ºC. The submitted test reports showed no effect on the coating system in artificial seawater, but for uncoated steel plates the corrosion rates increased by 10-25% in water treated with PERACLEAN®.

The final approval contains the following conditions: the maximum dosage is 150 mg/L, immediate discharge of ballast water following treatment is prohibited as the main component of PERACLEAN® requires 24 hrs to sufficiently dissipate, treatment is limited to ballast water uptake only

Revised Guidelines for Active Substances

The MEPC adopted revisions to resolution MEPC.126(53), "*Procedure for approval of ballast water management systems that make use of active substances (G9)*". The revisions increase the robustness of the standard for approval of active substances by requiring that a worst case discharge scenario and a human exposure scenario be included in the risk assessment that is submitted to IMO.

MISCELLANEOUS

Clarification Sought on the AFS Convention

The Anti-fouling System (AFS) Convention enters into force on 17 September 2008.

The Convention applies to ships (excluding fixed or floating platforms, FSUs, and FPSOs) of 400 gt and above engaged on international voyages.

The Convention requires that ships shall not apply or re-apply organotin compounds on/after 1 January 2003 and shall not bear organotin compounds on their hulls or external parts or surfaces unless a coating forms a barrier to organotin compounds on/after 1 January 2008.

IACS sought to clarify if the above mentioned implementation dates remained valid upon entry into force of the Convention. The Committee did not directly address the IACS submission due to a range of views presented by several Delegations and concluded the implementation dates are to be determined by each flag Administration.

In light of the above, ABS' advice remains the same since 2002 in that as of 17 September 2008, ships registered with an AFS signatory State, or any ship entering a port, shipyard or offshore terminal under the jurisdiction of a signatory State, shall not bear organotin compounds on the ship's hull or external parts or surfaces:

- if applied on/after 1 January 2003;
- if applied before 1 January 2003, unless bearing a coating that forms a barrrier to keep such compounds from leaching (i.e. sealed with a sealer coat.)

Under EU Regulation (EC) No 782/2003, as of 1 January 2008, ships registered in an EU Member State, or any ship entering an EU port or offshore terminal, shall not bear organotin compounds which act as biocides in anti-fouling systems on the ship's hull or external parts or surfaces unless sealed with a sealer coat.

ABS understands from informal discussions with EU officials that: 1) the sealer coat can only be used to seal organotin compounds that were applied for maintenance and repair purposes; and 2) if the ship was completely re-coated with an organotin compound on/after 1 July 2003, then the sealing of that coating will not be acceptable. ABS understands that the above clarification will be formalized at a future EU Member States' meeting of the Committee on Safe Seas and the Prevention of Pollution from Ships (COSS).

Note - For further information concerning the above information, please contact ABS Regulatory Affairs at :
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