

Ballast Water Regulative Update – January 2017

The highly aspirational Ballast Water Management Convention was agreed on the auspicious date of Friday 13th February 2004 with the intention to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. Initiated by the accession of Finland, the Convention has finally limped to enter into force (EIF) on the 8th September 2017, over 13 years later. What started out with optimism and a recognised need for pragmatic application and flexibility has turned into what many consider as 'the convention from hell', that is clearly even now not yet fit for purpose, as evidenced by the continuous ongoing need for the development of more and more guidelines and with the strict performance demands from flag States coupled with a lack of confidence in the ability of treatment equipment that States have type approved to meet the demanding standards set. The high cost of purchase and installation of this equipment unproven in the real world adds to concerns.

The latter part of 2016 brought unprecedented development to the regulatory world of ships ballast water requirements, including the agreed EIF of the Convention, the much needed revised treatment equipment type approval 'G8' guidelines with the additional agreement to give these a mandatory application, and the granting of US Type Approval to three ballast water treatment systems. The interaction and conflict in the differing timelines brought about increases the confusion and provide shipowners with additional dilemma for the most appropriate way forward, with little encouragement for certainty of the application of regulatory demands. This update intends to provide some explanation and clarification of developments and options that may be available for shipowners.

The introduction of type approved treatment equipment to bulk carriers, particularly the existing fleet, brings its own unique considerations and challenges that remain ignored and unrecognised by the regulators. The world bulk carrier fleet is by far the largest single sector by deadweight tonnage and a significant portion of the fleet utilises the highly energy efficient gravity discharge system for the topside ballast water tanks unique to bulk carriers. This is of course incompatible with the requirements for the obligatory discharge monitoring and secondary discharge treatment required to reach the performance standard or for neutralisation of any chemicals used in the treatment process. The fact that the topside tanks are traditionally filled from the fire main rather than the ballast main further compounds the problem; the major pipework and structural modifications required are an important consideration when assessing financial feasibility for ship sustainability. The additional challenges to be overcome with regard to flow rates and volumes operationally demanded from this market, the need for the use of ballast holds and the low installed electrical auxiliary power systems found in bulk carriers also needs careful address.

Revised Type Approval Guidelines (G8)

Were adopted during MEPC 70 at the end of October 2016 when it was also agreed to make the new type approval requirements applicable on a mandatory basis; the IMO Secretariat has been instructed to rewrite the guidance agreed in a mandatory

form for consideration during MEPC 71. This task may well prove unattainable as changing the current recommendatory text drafted into an acceptable mandatory text without the Committees input will be demanding.

The revised guidelines will certainly enhance the IMO type approval process, however there is unlikely to be acceptance by the US authorities as equivalent to the US EPV test procedures as the US requires a 'kill' standard and IMO accepts the MPN (most probable number) assessment for UV treatment systems. Other minor differences exist which will prevent a common acceptance and therefore both US and IMO Type approval will unfortunately be required for international trading which will most likely prove cost prohibitive for many treatment systems on the market. It is also to be noted that the G8 procedures will be kept under review in light of experiences gained in application.

MEPC 70 agreed the following timelines for application of the revised Type Approval Guidelines:

28 October 2016	Revised G8 Guidelines adopted
28 October 2016	Revised G8 Guidelines can be used
28 October 2018	Last date for approvals under old G8
28 October 2020	Last date for ship installations of old G8 approved systems

It is obvious that any new applications from manufacturers for treatment system type approval should be under the revised new requirements as all existing approved systems are required to be re-tested prior to October 2020 to continue in the market.

To avoid future problems it will be desirable for shipowners to purchase and install treatment systems approved under the revised procedures as it can be foreseen that a number of existing type approved ballast water treatment systems will either not meet the revised requirements or will have stringent operational limitations imposed. It is also obvious that such approved systems will not be available for some time. It has been agreed that 'early movers' who have installed the earlier type approved systems on their ships will not be penalised, however if the so called 'experience building phase' which commences upon EIF and scheduled to last 3 years identifies certain treatment systems as 'unreliable' it may be anticipated that many ports will not allow discharge of ballast water treated by such systems without further measures being applied, if BW discharge is permitted all.

The need for fitting a treatment system with additional US type approval also needs to be carefully considered, as certainly not all systems have the intention (whether stated or not) of pursuing US type approval and those systems currently with a US 'Alternative Management System' (AMS) status have only a limited life acceptability under US ruling.

BW Convention Required Installation Dates

The Convention is to EIF September 8th 2017. It has already been agreed that the date of renewal of the ships IOPP Certificate following EIF for existing ships (to include those contracted and under construction) is the applicable last date for

complying with the D-2 discharge standard by the installation and use of type approved ballast water treatment systems . MEPC 70 discussed the possibility of providing an additional allowance for ships with their IOPPC Certificate falling within the first two years following EIF to require to fit treatment systems by the second IOPP renewal, which would provide a D-2 required compliance span 2019 – 2024, however this is not to be finalised until MEPC 71 which has now been postponed from its scheduled April meeting to 3-7 July 2017. The possibility of MEPC accepting this additional allowance is uncertain although there remains a reasonable chance for adoption. This however gives very little time or even a realistic possibility for ships that could benefit from this consideration to pursue the alternative of arranging for, and renewing the IOPP Certification prior to the 8 September EIF should the proposal be rejected and provides further unwelcome uncertainty for the demanded implementation dates immediately prior to EIF.

It is also worth noting that any firm amendments agreed to the BWM Convention, including the implementation schedule, can only be circulated on or after EIF, that is 8th September 2017, and require 6 months in circulation prior to consideration for adoption, and then if adoption is approved another 12 months before the amended legislation can be official. The traditional way to bring forward any change in legislation has been to invite early implementation, which has been the prerogative of each individual Member State to decide, however, the most recent IMO Council meeting extensively discussed and disagreed with the use of early implementation of legislation, this may give rise to further cause for uncertainty. However Assembly resolution A.1088 (28) adopted in 2013, already clarifies that existing ships do not need to comply with the D-2 discharge standard until the first renewal survey following the Conventions EIF and that the renewal survey applicable is the survey associated with the International Oil Pollution Prevention Certificate under MARPOL Annex I.

USA Situation

To date, because no US approved ballast water management systems (BWMS) were available, the USCG has granted over 12,000 extensions for ballast water equipment installation since 2012. It has been stated that USCG extensions will continue to be granted until a sufficient number of suitable BWMS have received USCG type approval, sufficient, suitable models are available, dry-dock availability is not limited and issues from installation and commissioning are resolved.

During December 2016 the US Coast Guard completed its assessment of, and granted US Type Approval to three BWMS; Optimarin UV 167 – 3,000 m³/h; Alfa Laval Filter + UV 250 - 3,000 m³/h, and; OceanSaver In situ electrolysis 1,500 – 7,200 m³/h. This development has resulted in a 'game changer' in the Coast Guards extension process and shipowners will now have to document and justify how they cannot possibly fit an approved system on their ship. For future extension requests supporting documentation providing such information as the evaluation of BWMS and discussions with BWMS vendors, issues with the availability of suitable systems, lack of dry-docking space, problems encountered during purchasing, installation and commissioning, and a systems operational practicality pertinent to the individual ship and or trade, as relevant, will be required to gain acceptance. The unique and somewhat onerous demands of ballast water treatment system requirements for bulk

carriers may prove helpful in comparison with other ship types that require a much smaller and simpler system when requesting USCG future extensions.

A brief overview of the three BWMS that have gained USCG Type Approval is:

Oceansaver – disinfects by electrochlorination following filtration by an automatic self-cleaning filter equipped with a 40 micron screen, electrolysis process in a side stream which also contains a heater with provision to draw sea water from an on-board tank to enable use in cold and fresh water ambient conditions which can limit the use of in-line electrolysis BWMS. Monitors Cl₂ and provides automatic residual oxidant neutralisation function during discharge. From the on-line description 2 x 1600 m³/hour system (3,200 m³/hr) uses 127kw.

Optimarin – Filtration and UV treatment process, UV treatment at both uptake and discharge. Power demand for 3,000 m³/hr system stated as 720kw.

Alfa Laval - Filtration and UV treatment process, UV treatment at both uptake and discharge. Power demand for 3,000 m³/hr system stated as 300kw. (3x 1000m³/hour units)

It was somewhat unexpected to be informed by Alfa Laval that the power consumption for a 3,000m³/hr US approved system was 300kw when it is understood that UV power has to be increased substantially to achieve the 'kill' standard demanded in the US; the 720kw requirement stated by Optimarin is much more in line with that anticipated. It is recommended that power consumptions should be carefully assessed and verified during discussions when evaluating any BWMS.

Certification & Documentation

Upon EIF the Convention requires a ship to have the following:

- Approved ballast water management plan (Regulation B-1);
- Ballast water record book (Regulation B-2)1;
- An International Ballast Water Management Certificate (issued after survey under Regulation E-1).

It is paramount that the Ballast Water Management Certificate is in place on board on the 8th September 2017 and this is irrespective of whether the ship continues with ballast water exchange or biological treatment. Class societies have urged the need to arrange for the certification survey in good time to avoid problems as the survey and issuance of in excess of 60,000 certificates cannot be accomplished overnight!

Conclusions

The conflicting demands of US legislation and the IMO Ballast Water Management Convention will require careful attention to avoid costly mistakes when assessing options going forward, especially for bulk carrier owners.

It is apparent that the most attractive option for compliance with IMO's BWM Convention would be to take advantage of renewing the ship's IOPP Certificate immediately prior to EIF so as to give the greatest time possible for the fitting of a treatment system. This would be for a number of reasons, not least to allow time for suitable BW treatment systems approved under the revised Type Approval requirements to become available in the market, also the additional reprieve from considerable capital expenditure would provide time for the bulk carrier market to hopefully strengthen to justify such expenditure and verify the ship's financial sustainability. The one complexity to be considered in the equation is the possibility of MEPC 71 agreeing for ships with a scheduled survey renewal falling in the first two years following EIF to have the D-2 implementation delayed until the second survey, which would certainly be welcomed favourably by some older tonnage. However, is the chance of rejection of the proposal worth taking? One two-way possibility could be to arrange IOPP renewal to follow MEPC 71 and then decide whether or not to take-up the arrangements made dependent upon the IMO decision. Opportunities for alternative scheduling of a de-harmonised IOPP survey renewal may be limited, especially when the potential demand is considered; Owners would be well advised to make firm arrangements early to ensure completion in the requisite timing. It is understood that a small number of flag States are showing reluctance to requests to de-harmonise a ship's IOPP certification; with both monetary and treatment equipment viability considerations at stake, to change flag may become the only viable option in such cases. It is recognised that it will take time before BWMS manufacturers are able to attain type approval under the recently revised G8 procedures and make such systems available. To not take advantage of possibilities to extend implementation dates would place some owners in the injurious position of having to install 'first' generation ballast water management systems at substantial expense that may not work and may not meet the environmental objectives of the Convention."

Fortunately both the US Coast Guard and EPA to date have been found to be realistic in their implementation of the existing and in force ballast water regulations and it is hoped that this pragmatism will continue when viewing extension applications for bulk carriers with the many very real challenges bulk carrier owners face; an honest appraisal and documentation of the difficulties faced will be necessary together with a reasoned assessment of the possibilities for fitting the US type approved equipment that may be available. It can only be hoped that common sense will prevail.

It is a sad fact that the ambitions of 2004 have not materialised as foreseen and the thrust of a number of Administrations towards possibly unattainable goals whilst supporting their shipbuilding and/or BW treatment system manufacturing industries and ignoring practicalities and realism have led to the situation we now find. In a world where efficiency and reduction of fuel consumption has become so sought after it is surely an anomaly to demand the increase of energy consumption on a separate environmental concern when virtually equivalent protection can be obtained so easily and simply. The well-known Voltaire quote that 'the best is the enemy of the good' can easily be applied to ships ballast water management demands. The result of demanding that biological treatment systems be installed on all existing ships will no doubt result in many otherwise viable bulk carriers being scrapped due

to the costs and structural work required making continued trading financially unsustainable. The energy expended and Co2 produced during scrapping and building new replacement tonnage is not considered, perhaps it should be?

It would be simple to demand an enhanced ballast water exchange as a pragmatic possibility for existing tonnage, or even certain classes of ships to maintain efficiency, but unfortunately, as always, other political considerations will continue to prevail and contribute an overall unchallenged detriment to the environment and society.

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