

**CHAMBER OF SHIPPING OF AMERICA
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February 8, 2016

VIA REGULAR MAIL

Commandant
Admiral Paul F. Zukunft
U.S. Coast Guard Stop 7430
2703 Martin Luther King Jr. Ave. SE
Washington, DC 20593-7430

Re: U.S. Coast Guard 46 C.F.R. § 162.060-10(b)(1) request and type approval of ballast water management systems

Dear Sir:

On December 14, 2015, the United States Coast Guard (“USCG”) issued preliminary decisions that would prevent shipping companies, including those that are members of the Chamber of Shipping of America (CSA), from utilizing one of the most environmentally friendly and practical Ballast Water Management System (“BWMS”) developed to-date. Specifically, the USCG has preliminarily rejected the Most Probable Number (“MPN”) method for testing the efficacy of BWMSs that utilize ultraviolet (“UV”) technology to render organisms unable to reproduce. This action, if affirmed by senior USCG officials, would have significant adverse economic impacts on the entire shipping industry and adverse economic and environmental impacts throughout the world. We request that the USCG approve the 46 C.F.R. § 162.060-10(b)(1) requests and type approval applications for BWMSs that use UV technology to render organisms unable to reproduce, as measured by the MPN method.

It appears that the USCG is attempting to impose a regulatory restriction on BWMS type approvals that goes beyond the requirements utilized by other member nations of the International Maritime Organization (“IMO”). It is our understanding that this preliminary decision also goes beyond the requirements and intent of the Nonindigenous Aquatic Nuisance Prevention and Control Act, as amended by the National Invasive Species Act (“NISA”), to prevent and control infestations of nonindigenous aquatic species. The USCG’s preliminary rejection of the MPN method prevents U.S. type approval of UV technology-based BWMSs that render organisms non-reproductive, and therefore unable to colonize, because the efficacy of such systems is determined by using the MPN method. This preliminary rejection of the MPN method appears arbitrary and contrary to practice within most, if not all, other IMO member nations, and is even contrary to other use of the MPN method within the U.S.

The USCG's failure to accept MPN as an acceptable measurement method results in the imposition of a more stringent performance standard than those contained in the IMO Convention and USCG regulations. In particular text found in the December 14, 2016 decision letters issued by Capt. J.W. Mauger (Ref. 16710/PO18787/jmk; Serial E1-1504669 et al) states that "MPN is not equivalent because it does not measure the efficacy of the ballast water treatment system to the performance standard required by the regulations". We strongly disagree for the following reasons. First, the performance standard as found in Regulation D-2 of the IMO Ballast Water Convention and the USCG regulations at 33 CFR 151.2030 represents the level of three categories of organisms at or below which the risk of invasions is deemed acceptable. Second, the issue before us here is not to debate the quantitative aspects of the performance standards (the "what"), but rather how ballast water samples are evaluated and assessed (the "how") to determine if a particular sample meets the numeric performance standards. Third, given the two points noted above, imposition of a more conservative measurement methodology utilizing the living/dead criteria actually results in a de facto application of a more stringent performance standard than those found in the Convention and USCG regulations. In short, a UV system that meets the quantitative performance standards based on the viable/nonviable criteria but is otherwise required to power up the system to meet the living/dead criteria, is actually being subject to more stringent quantitative performance standards and contrary to those contained in the Convention, the controlling US statute and USCG regulations.

The MPN method is widely used throughout the world, including within the U.S. itself. Consistent with the rest of the world, the USCG uses the MPN method, along with other reproductive measurement methods, to ascertain whether BWMSs meet the discharge standards for organisms that are less than 10 microns in size. Now, the USCG inexplicably preliminarily refuses to use this method to measure the efficacy of BWMSs in regards to organisms that are 10 to 50 microns in size. We are not aware of any justification for treating organisms that are 10 to 50 microns in size differently from organisms that are less than 10 microns in size. If the MPN method is valid for testing the smaller organisms, then it is also valid for testing the larger organisms.

It is widely recognized in the worldwide scientific community that the MPN method is accurate and scientifically defensible. As recently stated by the USCG approved independent lab DNV GL,

The MPN method is the most relevant method and is a reliable way of evaluating the performance of UV technologies. That method has been validated to a greater extent than most of the methods described in the Environmental Technology Verification (ETV) Protocol (prescriptive guidance incorporated by reference to US regulation), and UV technologies are commonly accepted in other water treatment industries.¹

¹ DNV GL Technical and Regulatory News No. 28/2015 – Statutory, December 22, 2015, <https://www.dnvgl.com/news/uscg-makes-decision-on-use-of-mpn-method-for-ballast-water-management-systems-52160>.

Moreover, UV technology as measured by the MPN method fully upholds the requirements of NISA to prevent and control *infestations* of nonindigenous aquatic species. 16 U.S.C. § 4701(b). UV technology damages the DNA and RNA structures of organisms to interrupt their ability to reproduce, form colonies, and invade water bodies. Organisms that have no ability to propagate and colonize cannot cause an infestation. The MPN method is widely recognized as well-suited for detecting the efficacy of UV treatment to render organisms non-reproductive. In essence, taking into account the recognition that the quantitative performance standards represent levels at or below which the risk of invasion is deemed acceptable, it is irrelevant whether the organism is dead or non-viable. Either way, the organism is incapable of increasing the risk of an invasion to a receiving waterbody.

Over the last two years, the USCG gave every indication to the international shipping industry that U.S. type approval of UV BWMSs was forthcoming. Several top USCG officials, including the Commandant, led the international community to believe that type approval would be granted. For example, in August 2015 the Commandant stated, “We’re working with four independent labs right now to validate (technology) submittals. There are three submittals right now in the final stage. Eight others are in the initial stage of review. I’m pretty optimistic we will have Coast Guard approved ballast water standards by the IMO conference in November.”² Based on these and earlier assurances that approval is not impossible for UV BWMSs that incorporate UV as a disinfection process,³ many companies took the proactive, environmentally protective action of installing BWMSs that utilize UV technology.

UV technology that renders organisms non-reproductive is both green and practicable for ship owners. It uses at least four to eight times less energy than UV systems that purport to use enough UV light to “kill” organisms (or more precisely, to render treatment of organisms detectable by the ETV Protocol’s staining method). The alternate UV technology’s increased energy requirements and associated increase in fuel consumption and carbon emissions is both environmentally harmful and costly to ship owners. Simply stated, UV technology is well-established and reliable as is evidenced by its long and successful history with its use in treating drinking water in the U.S. and throughout the world.

Relative to text found in the December 14, 2016 decision letters stating “We are aware of other ballast water treatment systems, including one which uses UV irradiation, which are undergoing evaluation using the required tests” and in fact we are aware of one UV manufacturer who has announced that its system has met the living/dead criteria, we offer the following

² <http://magazines.marinelink.com/Magazines/MaritimeReporter/201508/content/ballast-treatment-modular-496801>, last visited 1/9/2016)

³ Dec. 2013 CLARIFICATION REGARDING COAST GUARD TYPE APPROVAL OF BALLAST WATER MANAGEMENT SYSTEMS USING ULTRAVIOLET RADIATION (No longer available on the USCG website) (“Recently the Coast Guard has been responding to rumors that type approval of ballast water management systems (BWMS) that incorporate ultraviolet radiation (UV) as a disinfection process will not be possible under Coast Guard type approval requirements. These rumors are not true.”)

comments based on a discussion with that manufacturer. The particular system in question requires 400% more power than a typical UV system approved based on MPN. For this system with a 3000m³/hour flow rate, the system would require 630 kW of power which is roughly equivalent to the full power output of a typical diesel generator set on a bulker/tanker. Given the typical arrangement on a VLCC with 2 ballast pumps with capacities of 4000 m³/hour, it can be seen that the power supply requirement for this particular system would be approximately 1.6 MW. As a result of the high power requirements for this particular system, it is only suitable for ships with either (1) low ballast capacity and flow rates and/or (2) high levels of auxiliary power found on the few ships with diesel electric power. In other words, UV systems required to meet the living/dead criteria are practically and economically unfeasible for only a few commercial ship types and sizes with low flow rates and/or high levels of auxiliary power. They are NOT practical or feasible for a vast number of commercial vessels, particularly bulkers and tankers that require high flow rate systems and which do not have reserve auxiliary power.

If senior USCG officials affirm the preliminary decision to disallow BWMSs that use UV technology measured by the MPN method, it will cause uproar and confusion in the international shipping industry. Approximately 50% of all IMO type-approved systems utilize UV technology to render organisms non-reproductive. By enforcing more stringent testing requirements on BWMSs that enter U.S. waters, it appears that the USCG is attempting to unilaterally make more stringent not only the IMO Convention requirements but also the USCG's own regulations. At the same time, however, the U.S. has not actually approved any BWMS that would meet its standard. As a result, there is currently no way for shipping companies to comply with both the IMO convention, which is widely anticipated to be in force in 2017, and the USCG's requirements as articulated in its preliminary decision. The USCG's departure from the worldwide standards wreaks havoc on the international shipping industry, constitutes unnecessary regulation without demonstrable corresponding environmental benefit, suppresses innovative and proven technology, and prevents the implementation of BWMSs that would prevent and control infestations of aquatic species today.

For all of the above reasons, senior USCG officials should approve the 46 C.F.R. § 162.060-10(b)(1) requests and type approval applications for BWMSs that use UV technology to render organisms unable to reproduce, as measured by the MPN method.

Respectfully submitted,



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