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DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 151

46 CFR Part 162

[USCG-2001-10486]

RIN 1625-AA32

Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

SUMMMARY: The Coast Guard proposes to amend its regulations on ballast water management by establishing standards for the allowable concentration of living organisms in ships' ballast water discharged in U.S. waters. The Coast Guard also proposes to amend its regulations for approving engineering equipment by establishing an approval process for ballast water management systems. These new regulations would aid in controlling the introduction and spread of nonindigenous species from ships discharging ballast water in U.S. waters.

DATES: Comments and related material must either be

submitted to our online docket via http://www.regulations.gov on or before [Insert date 90 days after date of publication in the FEDERAL REGISTER] or reach the Docket Management Facility by that date.

ADDRESSES: You may submit comments identified by Coast Guard docket number USCG-2001-10486 to the Docket Management Facility at the U.S. Department of Transportation. To avoid duplication, please use only one of the following methods:

(1) Federal eRulemaking Portal: http://www.regulations.gov.

(2) Mail: Docket Management Facility (M-30), U.S. Department of Transportation, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590-0001.

(3) Hand delivery: Docket Management Facility (M-30), U.S. Department of Transportation, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202-366-9329.

(4) Fax: 202-493-2251.

To avoid duplication, please use only one of these four methods. See the "Public Participation and Request

for Comments" portion of the SUPPLEMENTARY INFORMATION section below for instructions on submitting comments.

You may inspect the material proposed for incorporation by reference at Room 1601, Environmental Standards Division, U.S. Coast Guard Headquarters, 2100 Second Street SW, Washington, DC 20593 between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202-372-1433. Copies of the material are available as indicated in the "Incorporation by Reference" section of this preamble.

FOR FURTHER INFORMATION CONTACT: If you have questions on this proposed rulemaking, call or e-mail Mr. John Morris, Project Manager, Environmental Standards Division, U.S. Coast Guard Headquarters, telephone 202-372-1433, e-mail John.C.Morris@uscg.mil. If you have questions on viewing or submitting material to the docket, call Ms. Renee Wright, Chief, Dockets, Department of Transportation, telephone 202-366-9826.

SUPPLEMENTARY INFORMATION:

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I. Public Participation and Request for Comments

We encourage you to participate in this rulemaking by submitting comments and related materials. All comments received will be posted, without change, to http://www.regulations.gov and will include any personal information you have provided.

A. Submitting Comments

If you submit a comment, please include the docket number for this rulemaking (USCG-2001-10486), indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. We recommend that you include

your name and a mailing address, an e-mail address, or a phone number in the body of your document so that we can contact you if we have questions regarding your submission.

To submit your comment online, go to http://www.regulations.gov and click on the "submit a comment" box, which will then become highlighted in blue. Insert “USCG-2001-10486” in the Keyword box, click "Search", and then click on the balloon shape in the Actions column. If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. If you submit comments by mail and would like to know that they reached the Facility, please enclose a stamped, self-addressed postcard or envelope.

We will consider all comments and material received during the comment period and may change this proposed rule based on your comments.

B. Viewing Comments and Documents

To view comments, as well as documents mentioned in this preamble as being available in the docket, go to http://www.regulations.gov at any time. Enter the docket number for this rulemaking (USCG-2001-10486) in the Keyword box, and click “Search”. You may also visit the Docket

Management Facility in Room W12-140 on the ground floor of the DOT West Building, 1200 New Jersey Avenue SE, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. We have an agreement with the Department of Transportation to use the Docket Management Facility.

C. Privacy Act

Anyone can search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review a Privacy Act notice regarding our public dockets in the January 17, 2008, issue of the Federal Register (73 FR 3316).

D. Public Meeting

We have determined that public meetings would aid this rulemaking. Consequently, we plan to hold public meetings at times and places to be announced by separate notices in the Federal Register.

II. Table of Abbreviations

BWDS	ballast water discharge standard(s)
BWE	ballast water exchange
BWM	ballast water management
BWMS	ballast water management system(s)
cfu	colony forming unit

CZMA	Coastal Zone Management Act
DPEIS	Draft Programmatic Environmental Impact Statement
EEZ	U.S. Exclusive Economic Zone
EFH	essential fish habitat
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ETV	Environmental Technology Verification
HAB	Harmful algal blooms
IL	Independent Laboratory
IMO	International Maritime Organization
MARAD	U.S. Maritime Administration
MEPC	Marine Environment Protection Committee (of the IMO)
NANPCA	Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990
NARA	National Archives and Records Administration
NBIC	National Ballast Information Clearinghouse
NIS	nonindigenous species
NISA	National Invasive Species Act of 1996
NMFS	National Marine Fisheries Service
OMSM	Operation, Maintenance, and Safety Manual
ppt	parts per thousand
SERC	Smithsonian Environmental Research Center
STEP	Shipboard Technology Evaluation Program

III. Legislative and Regulatory History

Congress enacted the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA), 16 U.S.C. 4711 et seq., on November 29, 1990, and established the Coast Guard's regulatory jurisdiction over ballast water

management (BWM). To fulfill the directives of NANPCA, the Coast Guard published a final rule in the Federal Register on April 8, 1993, titled "Ballast Water Management for Vessels Entering the Great Lakes". 58 FR 18330. On December 30, 1994, we published another final rule in the Federal Register titled "Ballast Water Management for Vessels Entering the Hudson River". 59 FR 67632. These rules added a new subpart C to 33 CFR part 151, "Ballast Water Management for Control of Nonindigenous Species in the Great Lakes and Hudson River", which established mandatory BWM procedures for vessels entering the Great Lakes and Hudson River.

Congress enacted the National Invasive Species Act (NISA) on October 26, 1996, reauthorizing and amending NANPCA. 16 U.S.C. 4711 et seq. Through NISA, Congress reemphasized the significant role the discharge of ships' ballast water plays in the spread of nonindigenous species (NIS), defined as any species or other viable biological material that enters an ecosystem beyond its historic range, including any such organism transferred from one country into another, in U.S. waters and directed the Coast Guard to develop a voluntary national BWM program. On May 17, 1999, the Coast Guard published an interim rule in the Federal Register on this voluntary program titled

"Implementation of the National Invasive Species Act of 1996 (NISA)". 64 FR 26672. The interim rule added a new Subpart D to 33 CFR part 151 titled "Ballast Water Management for Control of Nonindigenous Species in Waters of the United States". We published the final rule in the Federal Register on November 21, 2001. 66 FR 58381.

Through NISA, Congress also directed the Secretary of the Department in which the Coast Guard is operating to submit a report to Congress evaluating the effectiveness of the voluntary BWM program. In the June 3, 2002, report to Congress, the Secretary of the Department of Transportation[1] concluded that low participation in the voluntary program resulted in insufficient data for an accurate assessment of its effectiveness. This finding triggered the requirement in NISA that the voluntary BWM program become mandatory. A copy of the report to Congress can be found in docket (USCG-2002-13147) at http://www.regulations.gov.

On July 28, 2004, we published a final rule in the Federal Register titled, "Mandatory Ballast Water Management Program for U.S. Waters". 69 FR 44952. This final rule changed the national voluntary BWM program to a mandatory one, requiring all vessels equipped with ballast

[1] The Coast Guard moved from the Department of Transportation to the Department of Homeland Security on March 1, 2003. Homeland Security Act of 2002, Pub. L 107-296 (November 25, 2002), Title VIII, Subtitle H, Section 888.

water tanks and bound for ports or places of the United States to conduct a mid-ocean ballast water exchange (BWE), retain their ballast water onboard, or use an alternative environmentally sound BWM method approved by the Coast Guard.

Also, on June 14, 2004, the Coast Guard published a final rule in the Federal Register titled "Penalties for Non-submission of Ballast Water Management Reports". 69 FR 32864. In this final rule, we established penalties for failure to comply with the reporting requirements located in 33 CFR part 151 and broadened the applicability of the reporting and recordkeeping requirements to a majority of vessels bound for ports or places of the United States.

On August 31, 2005, we published a notice of policy in the Federal Register titled "Ballast Water Management for Vessels Entering the Great Lakes that Declare No Ballast Onboard". 70 FR 51831. Through this policy, we established the best management practices for vessels entering the Great Lakes that have residual ballast water and ballast tank sediment.

IV. Background and Purpose

Under the legislative mandate in NISA, the Coast Guard must approve any alternative methods of ballast water

management (BWM) that are used in lieu of mid-ocean ballast water exchange (BWE) required under NISA. 16 U.S.C. 4711(c)(2)(D)(iii). NISA further stipulates that such alternative methods must be at least as effective as BWE in preventing or reducing the introduction of nonindigenous species into U.S. waters. 16 U.S.C. 4711(c)(2)(D)(iii). Finally, NISA requires the Coast Guard to review and revise its BWM regulations not less than every three years based on the best scientific information available to the Coast Guard at the time of that review, and potentially to the exclusion of the BWM methods listed at 16 U.S.C. 4711(c)(2)(D). 16 U.S.C. 4711(e).

Determining whether an alternative method is as effective as BWE is not an easy task. The effectiveness of BWE is highly variable, largely depending on the specific vessel and voyage. These variables make comparing the effectiveness of an alternative BWM method to BWE extremely difficult. In addition, a majority of vessels are constrained by design or route from practicing BWE effectively. This is supported by BWE results which show a proportional reduction in abundance of organisms, so every vessel then has a different allowable concentration of organisms in its discharge. Thus, vessels with very large starting concentrations of organisms in their ballast tanks

might still have large concentrations of organisms after BWE. Results from several studies have shown the effectiveness of BWE varies considerably and are dependent upon vessel type (design), exchange method, ballasting system configuration, exchange location, and method of study. One group of studies suggests that the efficacy of ballast water exchange is 80-99 percent per event (Dickman and Zhang 1999; Hines and Ruiz 2000; Rigby and Hallegraeff 1993; Smith et al. 1996; Taylor and Bruce 2000; Zhang and Dickman 1999). Other studies demonstrate that the volumetric efficiency of BWE ranges from 50-90 percent (Battelle 2003; USCG 2001; Zhang and Dickman 1999).

For these reasons, BWE is not well suited as the basis for a protective programmatic regimen, even though it has been a useful "interim" management practice. We have concluded that, as an alternative to using BWE as the benchmark, establishing a standard for the concentration of living organisms that can be discharged in ballast water would advance the protective intent of NISA and simplify the process for Coast Guard approval of ballast water management systems (BWMS). Additionally, setting a discharge standard would promote the development of innovative BWM technologies, be used for enforcement of the

BWM regulations, and assist in evaluating the effectiveness of the BWM program.

Therefore, in this rulemaking, we would amend 33 CFR part 151 by establishing two ballast water discharge standards (BWDS), which are discussed below. We also propose amending 46 CFR part 162 by adding an approval process for BWMS intended for use on board vessels to meet the proposed discharge standard.

Vessels that would be subject to today's proposed rulemaking would also be subject to the December 2008 Environmental Protection Agency (EPA) Vessel General Permit (VGP) issued under section 402 of the Clean Water Act. That VGP contains discharge limits for a number of discharges incidental to the normal operation of vessels, including ballast water, and applies to vessels being used as a means of transportation with incidental discharges into inland navigable waters and the three mile U.S. territorial sea. For more information on the VGP, visit EPA's website at: www.epa.gov/npdes/vessels. Nothing in today's proposal is intended to affect in any way action EPA may take in the future with respect to regulation of ballast water discharges in the vessel general permit under its Clean Water Act authorities. See, e.g., 16 U.S.C. 4711(b)(2)(C) and 4711(c)(2)(J).

V. Discussion of Proposed Rule

A. Phase-One Ballast Water Discharge Standard (BWDS)

This NPRM would require that all vessels that operate in U.S. waters, are bound for ports or places in the U.S., and are equipped with ballast tanks, install and operate a Coast Guard approved ballast water management system (BWMS) before discharging ballast water into U.S. waters. This would include vessels bound for offshore ports or places. It would not include vessels that operate exclusively in one Captain of the Port (COTP) Zone, as it is unlikely that vessels operating only within one COTP Zone would introduce invasive species (from outside of that COTP Zone) into the waters of their COTP Zone. Whether the vessel traveled 200 nautical miles offshore would no longer be a factor in determining applicability. This means that some vessels that operated exclusively in the coastwise trade, which were previously exempt from having to perform ballast water exchange (BWE), would now be required to meet the BWDS. This requirement is intended to meet the directives under NISA that requires the Coast Guard to ensure to the maximum extent practicable that nonindigenous species (NIS) are not introduced and spread into U.S. waters and that they apply to all vessels equipped with ballast tanks that operate in U.S. waters. 16 U.S.C. 4711(c)(1), (c)(2)A , (e) and (f).

The proposed rule includes a phase-in schedule for complying with both the phase-one and phase-two proposed BWDS based on each vessel's ballast capacity and build date. During the phase-in period for the phase-one standard, ballast water exchange (BWE) would remain as a ballast water management (BWM) option for vessels not yet required to meet the BWDS. At the end of the phase-one phase-in schedule, the option of using BWE would be eliminated. From that date forward, all vessels would be required to manage their ballast water through a Coast Guard approved BWMS and meet either the proposed phase-one or phase-two discharge standard, as applicable, or retain their ballast water onboard.

The phase-one BWDS proposed in this notice is the same standard adopted by the International Maritime Organization (IMO) in 2004, "International Convention for the Control and Management of Ships' Ballast Water and Sediments" (BWM Convention). The USCG leads the U.S. government delegation to the IMO, the organization responsible for improving maritime safety and preventing pollution from vessels. In September 1995, the IMO identified NIS as a major issue confronting the international maritime community. To address the issue, in 1997, the IMO adopted voluntary guidelines, "International Guidelines for Preventing the

Introduction of Unwanted Aquatic Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges." In February 2004, the IMO adopted the BWM Convention, which establishes BWM procedures and includes an international standard for BWD. The USCG coordinated U.S. participation in this effort with the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the U.S. Department of Defense, the U.S. Maritime Administration, the U.S. Department of Justice, and the U.S. Department of State. The BWM Convention opened for ratification in February 2004, and under its terms does not enter into force until one year after ratification by 30 countries representing not less than 35 percent of the gross tonnage of the world's merchant shipping. To date, the BWM Convention is not in force.

The Draft Programmatic Environmental Impact Statement (DPEIS) (available in the docket for this rule where indicated under ADDRESSES) states that the phase-one proposed BWDS should markedly decrease the risks of vessel-mediated introductions of NIS into U.S. waters, relative to the status quo. We also consider that this BWDS, which has become the de facto international efficacy target for developers of BWMS, will be practicable to implement in the near term. Currently, numerous technology developers are

submitting BWMS designed to meet this standard to several foreign governments for testing in accordance with the IMO guidelines for approval of BWMS. All indications are that there will soon be technologies available on the market to allow vessels to meet this standard. As of July 2009, there have been 15 BWMS given IMO basic approval and of those 15, eight have been given IMO final approval. Further, six BWMS have received type approval certifications under the requirements of the convention from foreign administrations (Liberia, Germany, Norway, and United Kingdom). Some of the manufacturers of BWMS that have been given type approval have received orders from vessel owners to purchase those BWMSs.

B. Phase-Two Ballast Water Discharge Standard (BWDS)

While the proposed phase-one BWDS is practicable to achieve in the near term and will considerably advance environmental protection over the current exchange-based regime, we also recognize that it should not be the ultimate endpoint for protection of U.S. waters. We note that a number of states have already adopted BWDS using more stringent standards. We have considered information concerning whether technology to achieve this standard can practicably be implemented now or by the compliance dates under consideration. Although some technologies may be

capable of achieving the phase-two standard, we believe there is not now a testing protocol capable of establishing that a technology achieves the phase-two standard and testing results under existing protocols do not provide sufficient statistical confidence to establish that technologies consistently meet the phase-two standard.

The purpose of NISA, as already noted, is to ensure to the maximum extent practicable that NIS are not introduced and spread into U.S. waters. Our phase-two standard represents a standard that is potentially 1000 times more stringent than the phase-one standard. We believe that setting this more stringent standard and establishing implementation dates for the phase-two BWDS will encourage technology vendors to develop technologies capable of meeting the phase-two standard. In addition, we expect to continue cooperative work to establish testing protocols that can establish that technologies meet the standard with adequate statistical confidence.

We propose incorporating a practicability review into the phase-in schedule for the phase-two BWDS. The purpose of the review is to determine whether technology to achieve the performance standard can practicably be implemented, in whole or in part, by the applicable compliance dates. This includes more than just looking at whether there is

technology available to achieve the phase-two standard, as we discuss later in this preamble. The initial review would be completed in early 2013 and, in the event that some or all of the phase-two standard is found to be not practicable, the compliance date for those elements found not to be practicable would be extended in accordance with the findings of the practicability review. At the same time, a date for the next practicability review would be established, no later than two years after the completion of the first practicability review (i.e. no later than 2015). In establishing this time frame we are attempting to balance our intent to implement the phase-two standards as expeditiously as practicable with a consideration of how quickly progress in developing and testing technology may be likely to occur. We seek comment on whether one year or three years would be a more appropriate time limit for further practicability review, should one or more be needed.

The Coast Guard will seek public input in preparing the practicability review, and any decision to extend the compliance date of elements of the phase-two standards found not to be practicable would be subject to the requirements of the Administrative Procedure Act.

We've also left open the possibility that the practicability review might reveal that a more stringent standard between the proposed phase-one and the phase-two BWDS is achievable. We also allow for the possibility that technology might be capable of achieving a standard that is even more stringent than what we have proposed as the phase-two BWDS. In these cases, we would propose amending either the implementation timeline or the phase-two standard, or both, at the time that we publicize the results of our practicability review. Once the phase two standards are fully implemented, the Coast Guard would continue to review the standards every three years, as required by NISA, to ensure that they continue to ensure, to the maximum extent practicable, that aquatic nuisance species are not introduced and spread into U.S. waters.

In addition to the comments we receive from the public, we also will use the technical information gained from the rigorous testing of BWMS here and in other countries to determine whether it is practicable to meet the phase-two BWDS on the timeline we have proposed in this NPRM. The testing conducted for purposes of type approval in the U.S. and abroad, as well as testing for other purposes (such as the Coast Guard's Shipboard Technology Evaluation Program and the U.S. Environmental Protection

Agency's (EPA) Environmental Technology Verification Program, discussed later in this preamble), will provide credible and standardized data on the performance characteristics of BWMS. We will use technical information from these testing activities and any other information to complete the practicability review proposed in this NPRM. This practicability review could entail more than determining whether there exists one system that is capable of meeting the phase-two standard. It could also include additional parameters, such as the capability of the vendor(s) to make the system(s) available, and the ship building and repair industry to install, systems in a timely and practicable manner given the large number of vessels that would require such system(s), and the cost impact of the system(s) on the regulated industry. We request comment on the appropriate scope of the practicability review and, in particular, how and to what extent costs should be considered in the review.

Practicability could also include consideration of scientific factors beyond technology. For example, it could include the likely effect of a particular decrease in the threshold concentration on the probability of introduced organisms successfully establishing populations in U.S. waters. Currently, the scientific understanding of

the quantitative relationships between the frequency and magnitude of introductions and the probability of successful establishment is not well understood for aquatic species. Given that such information will help to improve our ability to evaluate appropriate prevention measures, we will work to elevate the priority of this topic for research by the Coast Guard, resource agencies and others funding environmental science. We request comment on whether and how such factors should be considered in the practicability review.

C. Applicability

The Coast Guard proposes that the ballast water discharge standard apply to all vessels discharging ballast water into U.S. waters. In accordance with NISA, certain vessels would be exempt from the requirements to install and operate a Coast Guard approved BWMS, including:

- Crude oil tankers engaged in coastwise trade (16 U.S.C. 4711(c)(2)(L));
- Any vessel of the U.S. Armed Forces as defined in the Federal Water Pollution Control Act (33 U.S.C. 1322(a)) that is subject to the Uniformed National Discharge Standards for Vessels of the Armed Forces (33 U.S.C. 1322(n)) (16 U.S.C. 4711(c)(2)(J)); and

- Any warship, naval auxiliary, or other vessel owned or operated by a foreign state and used, for the time being, only on government non-commercial service (consistent with IMO BWM Convention, Article 3; 1982 United Nations Convention on the Law of the Sea, Article 236).

Under today's proposal, foreign vessels equipped with and operating a BWMS that has been approved by a Foreign Administration would be allowed to use the BWMS for discharging ballast water into U.S. waters if the Coast Guard determines that the Foreign Administration's approval process is equivalent to the Coast Guard's approval program, the BWMS otherwise meets the requirements of this proposed rule, and the resulting discharge into waters of the U.S. meets the applicable (i.e. phase-one or phase-two) proposed discharge standard.

The Coast Guard initiated a BWMS research program on January 7, 2004, called the Shipboard Technology Evaluation Program (STEP). 69 FR 1082. STEP is intended to facilitate research, development, and shipboard testing of effective BWMS. Vessels participating in STEP would be granted equivalencies to the BWMS approval requirements of the proposed rule. In the event that information learned during STEP on any experimental BWMS leads the Coast Guard to conclude that there is a risk to the environment,

vessel, and/or human health, testing of the BWMS would be stopped and acceptance to STEP would be withdrawn. This would mean that the equivalency determination would also be withdrawn, and that the vessel would be required to use a different Coast Guard approved BWMS to meet the requirements of the proposed rulemaking. More information on STEP can be found at: http://www.uscg.mil/environmental_standards/.

The Coast Guard would consider, on a case-by-case basis, making equivalency determinations for vessels participating in similar research programs conducted by Foreign Administrations or State governments. In such cases, the vessel owner or operator would request an equivalency determination from the Coast Guard. If a vessel granted an equivalency determination is later removed from one of these programs, the vessel would be required to install a different Coast Guard approved BWMS to meet the requirements of the proposed rule.

D. Proposed Discharge Standards

The current BWM regulations in 33 CFR part 151 are split into two regulatory regimens - the Great Lakes Ballast Water Management Program and the U.S. Ballast Water Management Program. These regulations are found in 33 CFR part 151 subparts C and D, respectively. In this proposed

rule, we would establish a phase-one and phase-two discharge standard for all vessels that discharge ballast water into U.S. waters. However, we would keep subparts C and D separate to retain some pre-existing regulations that are specific to the Great Lakes. We are retaining these pre-existing regulations, specific to the Great Lakes, because we want to be consistent with the Department of Transportation's Saint Lawrence Seaway Development Corporation's BWM regulations and Canadian (Transport Canada) BWM regulations. Also, the uniqueness of vessel traffic patterns into the Great Lakes warrants special treatment, as reflected in the pre-existing regulations.

Invasive species have proven to be a significant and costly problem in the Great Lakes. NISA explicitly recognized that some areas might require special protections by providing that ballast water management regulations may be regional in scope. The Coast Guard thus requests comment on the appropriateness of the proposed rule for control of invasive species from ballast waters discharged into the Great Lakes or other areas. More specifically, are there characteristics of the Great Lakes ecosystem or other ecosystems that would justify more stringent standards or earlier compliance dates for ships operating in the Lakes or other areas than for ships in

other U.S. waters, keeping in mind that NISA also requires that such regulations should be practicable? Should the regulations include provisions that apply only to the Great Lakes or other areas? What provisions of the proposed rule might be changed in light of the identified special circumstances in the Great Lakes or other locations (e.g.: compliance schedules, treatment levels)? In addition, are there practices or technologies not addressed in the proposed rule that might be practicably applied specifically to protection of the Great Lakes or other ecosystems (e.g.: on-shore treatment or prior to entering freshwater or limitations on access to the Lakes or other areas for vessels that pose a special risk of discharge of new invasive species, and if so, how would those special risks be assessed in a practicable manner)? Please provide explicit information on the practicability of any such proposed approaches, including costs and resources required to implement and maintain such requirements.

The proposed phase-one standard for allowable concentrations of living organisms in ships' ballast water is:

(1) For organisms larger than 50 microns in minimum dimension: discharge less than 10 organisms per cubic meter of ballast water.

(2) For organisms equal to or smaller than 50 microns and larger than 10 microns: discharge less than 10 organisms per milliliter (ml) of ballast water.

(3) Indicator microorganisms must not exceed:

(a) For toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of < 1 colony forming unit (cfu) per 100 ml;

(b) For *Escherichia coli*: a concentration of < 250 cfu per 100 ml; and

(c) For intestinal enterococci: a concentration of < 100 cfu per 100 ml.

The Coast Guard has determined that the proposed phase-one standard for ballast water discharge would provide a greater degree of protection than BWE and will help reduce the risk of NIS introductions. In our study of five alternative ballast water discharge standards, detailed in the Draft Programmatic Environmental Impact Statement (DPEIS), we estimated that ballast water treatment to achieve the phase-one standard proposed in this rulemaking would be up to 60% more effective than BWE and 80% more effective than unmanaged ballast water discharge in preventing the probability of biological invasions.

As described and discussed in Section 4 (Environmental Consequences) of the DPEIS, the alternative ballast water discharge standards compared in the NEPA assessment can be expressed in terms of the proportion of organisms in different size classes that will be prevented from being introduced. Table 1 describes the alternative BWDS.

Table 1. Allowable concentration of organisms in BWD, by size, for Alternatives 2-4.[2]

	Large Organisms > 50 microns in size	Small Organisms >10 and ≤50 microns in size	Bacteria		
			Toxigenic *Vibrio cholerae* (O1 and O139)	*E. coli*	Intestinal enterococci
Alternative 2	<10 per m^3	<10 per ml	<1 cfu per 100 ml	<250 cfu per 100 ml	<100 cfu per 100 ml
Alternative 3	<1 per m^3	<1 per ml	<1 cfu per 100 ml	<126 cfu per 100 ml	<33 cfu per 100 ml
Alternative 4	<0.1 per m^3	<0.1 per ml	<1 cfu per 100 ml	<126 cfu per 100 ml	<33 cfu per 100 ml

In addition to the alternatives shown in the table above, Alternative 5 (which is essentially sterilization) would require the removal or inactivation of all living membrane-bound organisms (including bacteria and some

[2] Note, for ease of comparison within the Table, the alternatives have all been standardized to numbers of organisms per standard unit of volume. For organisms larger than 50 microns, the unit volume is one cubic meter. For organisms less than or equal to 50 microns, but greater than 10 microns, the unit volume is 1 milliliter. Note also that if expressed in terms of whole numbers of organisms in a volume, alternative 4 would be equal to less than 1 organism per 10 cubic meters or 10 milliliters of water (depending on size class) and the phase two standard would be less than 1 organism per 100 cubic meters or 100 milliliters of water (depending on size class).

viruses) larger than 0.1 micron. The mathematical modeling approach that we used in the DPEIS provides an assessment of the relative effectiveness in increasing extinction probability, by taxonomic group, of a particular alternative ballast water discharge standard. Relative effectiveness is measured by the proportional increase in theoretical extinction probability over the 'no management' option (No Action Alternative).

This mathematical or analytical approach can be used to compare the alternatives in relative terms, but not in absolute terms. For example, Alternative 5 in the DPEIS results in no introduction of nonindigenous species via ballast water, whereas Alternatives 2, 3, and 4 increase extinction probability, and thus decrease the probability of successful invasions by different factors when compared to the No Action Alternative. The comparison is relative, rather than absolute, because the analysis was done using a specific and highly limited, but reasonable, set of estimates for the controlling variables. These variables include initial population size, threshold population size for extinction, population growth rate, and population variability around the mean growth rate. It is important to understand that these predictions relate to relative, not absolute, differences in risk reduction. Table 2

illustrates the potential impacts to the various environments in relation to vessels treating their ballast water to the alternative BWDS.

Table 2. Comparison of Alternatives

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Marine Ecosystems	Current impacts would continue – trophic interactions[1], changing community structures[2], harmful algal blooms (HAB), effects on ecosystem services[3]	Minor to moderate reduction in NIS introductions, resulting in fewer negative changes to natural community structures, fewer HAB	Moderate reduction in NIS introductions, resulting in fewer negative changes to natural community structures, fewer HAB	Moderate to major reduction in NIS introductions, resulting in fewer negative changes to natural community structures, fewer HAB	Unquantified. Impacts would likely be greatly reduced compared to the other alternatives
Estuarine Ecosystems	Current impacts would continue – erosion, turbidity, trophic interactions, changing community structures, HAB, effects on ecosystem services	Minor to moderate reduction in NIS introductions, resulting in less erosion, fewer negative changes to natural community structure, fewer HAB, lessened negative impacts on ecosystem services	Moderate reduction in NIS introductions, resulting in less erosion, fewer negative changes to natural community structure, fewer HAB, lessened negative impacts on ecosystem services	Moderate to major reduction in NIS introductions, resulting in less erosion, fewer negative changes to natural community structure, fewer HAB, lessened negative impacts on ecosystem services	Unquantified. Impacts would likely be greatly reduced compared to the other alternatives
Freshwater Ecosystems	Current impacts would continue – erosion, trophic interactions, changing community structures, effects on ecosystem services	Minor to moderate reduction in NIS introductions, resulting in less erosion, fewer negative changes to natural community structure, fewer HAB, lessened negative impacts on ecosystem services	Moderate reduction in NIS introductions, resulting in less erosion, fewer negative changes to natural community structure, fewer HAB, lessened negative impacts on ecosystem services	Moderate to major reduction in NIS introductions, resulting in less erosion, fewer negative changes to natural community structure, fewer HAB, lessened negative impacts on ecosystem services	Unquantified. Impacts would likely be greatly reduced compared to the other alternatives
Threatened and Endangered Species	Current impacts would continue, trophic interactions, changing community structures, HAB, disruption of food sources, effects on ecosystem	Minor to moderate reduction in NIS introductions, resulting in fewer negative changes to natural community structure, fewer HAB, less disruption of food sources, lessened negative impacts on	Moderate reduction in NIS introductions, resulting in fewer negative changes to natural community structure, fewer HAB, less disruption of food sources, lessened	Moderate to major reduction in NIS introductions, resulting in fewer negative changes to natural community structure, fewer HAB, less disruption of food sources, lessened negative impacts on	Unquantified. Impacts would likely be greatly reduced compared to the other alternatives

	services	ecosystem services	negative impacts on ecosystem services	ecosystem services	
Essential Fish Habitat	Current impacts would continue, trophic interactions, changing community structures, HAB, degradation of habitat	Minor to moderate reduction in NIS introductions, resulting in fewer negative changes to natural community structure, fewer HAB, less degradation of habitat	Moderate reduction in NIS introductions, resulting in fewer negative changes to natural community structure, fewer HAB, less degradation of habitat	Moderate to major reduction in NIS introductions, resulting in fewer negative changes to natural community structure, fewer HAB, less degradation of habitat	Unquantified. Impacts would likely be greatly reduced compared to the other alternatives
Socioeconomics	Disruptions of fisheries, fouling of environment, reduction in tourism due to fouling, higher costs from NIS impacts & responses to them	Minor to moderate reduction in NIS introductions, resulting in less fouling of the environment, fewer fishery disruptions, and less revenue lost from a decrease in tourism due to NIS impacts on the environment	Moderate reduction in NIS introductions, resulting in less fouling of the environment, fewer fishery disruptions, and less revenue lost from a decrease in tourism due to NIS impacts on the environment	Moderate to major reduction in NIS introductions, resulting in less fouling of the environment, fewer fishery disruptions, and less revenue lost from a decrease in tourism due to NIS impacts on the environment	Unquantified. Impacts would likely be greatly reduced compared to the other alternatives

Resources listed are from Chapter 3, Affected Environment. Reduction amounts, and therefore environmental impacts, are based on the modeling results described in Chapter 4, Environmental Consequences. Further descriptions of the environmental impacts are found in Chapter 4, Environmental Consequences. Alternatives 2 – 5 are compared to the No Action Alternative (both BWE and no BWM) as a baseline.

Notes:
1. Trophic interactions pertain to the feeding relationships between organisms in a food web.
2. Community structure refers to the physical structure and composition, as well as energy flows, of a community of organisms.
3. Ecosystem services are those resources and processes that are performed by natural systems for which there is human demand and benefit.

Table 3. Comparison of the relative effectiveness of Alternatives

	$N_e = 1$		$N_e = 100$	
Alternative	No BWM	BWE	No BWM	BWE
2	**52%**	**37%**	**78%**	**63%**
3	**73%**	**64%**	**94%**	**90%**
4	**88%**	**85%**	**100%**	**100%**
N_e is the extinction threshold of the population in the model.				

Alternative 3 could be 64% more effective than BWE and 94% more effective than unmanaged ballast water discharge and Alternative 4 could be 85% more effective than BWE and 100% more effective than unmanaged ballast water discharge in preventing the probability of biological invasions as shown in Table 3.

As noted above, this proposed rule would remove the option of conducting BWE as a ballast water management method per the compliance dates of the implementation schedule, which detail the timeframe that vessels would be required to install and operate a Coast Guard approved BWMS.

The proposed phase-two standard for allowable concentrations of living organisms in ships' ballast water is:

(1) For organisms larger than 50 microns in minimum dimension: discharge less than 1 per 100 cubic meter of ballast water;

(2) For organisms equal to or smaller than 50 microns and larger than 10 microns: discharge less than 1 organism per 100 milliliter (ml) of ballast water;

(3) For organisms less than 10 microns in minimum dimension:

(i) Discharge less than 10^3 living bacterial cells per 100 ml of ballast water; and

(ii) Discharge less than 10^4 viruses or viral-like particles per 100 ml of ballast water; and

(4) Indicator microorganisms must not exceed:

(i) For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of < 1 colony forming unit (cfu) per 100 ml;

(ii) For *Escherichia coli*: a concentration of < 126 cfu per 100 ml; and

(iii) For intestinal enterococci: a concentration of < 33 cfu per 100 ml.

This phase-two standard largely mirrors the standard proposed by the U.S. during negotiations for the IMO BWM convention and the more stringent standard established by several states, either under the states' authority or as state conditions to the Environmental Protection Agency (EPA) Vessel General Permit (VGP).

3. Proposed Implementation Schedule

The proposed implementation schedule for meeting the proposed phase-one ballast water discharge standard is shown in Table 4. The proposed implementation schedule for meeting the proposed phase-two ballast water discharge standard is shown in Table 5. Our proposed implementation

schedule would provide vessel owners and operators sufficient time to install the necessary equipment needed to comply with the phase-one discharge standard, without causing significant disruptions to vessels operations and maritime commerce. Our phase-one implementation schedule is similar to the implementation schedule for the IMO Convention as they are both based on build date and ballast water capacity. An implementation schedule using build dates and ballast water capacities was determined by the Coast Guard and IMO to be an appropriate mechanism for giving both vessel owners and BWMS manufacturers enough time to have BWMS approved and installed while avoiding long delays at shipyards where these installations would take place. As there are limited numbers of shipyards around the world, vessel owners must schedule BWMS installations well in advance. An implementation schedule calling for faster installation would likely make it difficult for vessel owners to comply with the requirements in time. However, we are requesting comment specifically on whether it would be possible for vessel owners to comply with a phase-one BWDS implementation schedule that called for all existing vessels to install an approved BWMS on their vessel by 2014.

We also request comment on whether there are any facilities ready to meet the requirements of becoming an Independent Lab (IL), and any technology vendors ready to submit their system(s) to the proposed protocols as soon as a facility is recognized as an IL, such that the initial practicability review, now scheduled for January 2013, could be moved to January 2012. If the IL and vendors were ready, would moving the practicability review allow time for vessels with a 2014 compliance date to implement technology meeting phase two standards in place of technology meeting only phase one standards?

Table 4 - Proposed Implementation Schedule for the Phase-One Ballast Water Management Program

Vessel's Ballast Water Capacity (cubic meters, m^3)		**Vessel's Construction Date**	**Vessel's Compliance Date**
New vessels	All	On or after January 1, 2012	On Delivery
Existing vessels	Less than 1500	Before January 1, 2012	First drydocking after January 1, 2016
	1500-5000	Before January 1, 2012	First drydocking after January 1, 2014
	Greater than 5000	Before January 1, 2012	First drydocking after January 1, 2016

Table 5 - Proposed Implementation Schedule for the Phase-Two Ballast Water Management Program

Vessel's Ballast Water Capacity (cubic meters, m^3)		Vessel's Construction Date	Vessel's Compliance Date
New vessels	All	On or after January 1, 2016	On Delivery
Existing vessels	All	Before January 1, 2016	First drydocking after January 1, 2016, UNLESS the vessel installed a BWMS meeting the phase-one standard before January 1, 2016, then 5 years after installation of the BWMS meeting the phase-one standard

Note that the phase-two standard implementation date for all existing vessels that have not installed a BWMS meeting the phase-one standard by January 1, 2016 is the same compliance date regardless of the vessel's ballast water capacity. The only exception for this would be for those vessels that have already installed a BWMS type approved as meeting the phase-one standard. (These vessels would be allowed additional time to comply with the phase-two standards, as discussed below.) This is because we would be publishing the results of a practicability review in early 2013 to determine whether it will be practicable to meet the phase-two standard in the proposed timeline. If, at that time, we determine that it is practicable, these vessels would have enough time to plan for

installation of a system capable of meeting the phase-two standard and should be required to do so. If, however, our practicability review indicates that it will not be possible to implement the phase-two standard on our proposed timeline, those vessels would still be required to install a system capable of meeting the phase-one standard in accordance with the schedule in Table 4.

The phase-two standard also includes a grandfather clause for those vessels that install technology that has been type approved as meeting the phase-one BWDS prior to January 1, 2016. We seek comment on whether such a grandfather clause is necessary, and if so, whether the proposed five year period is enough time, more than enough time, or not long enough. We specifically request information pertaining to the impacts, cost and otherwise, of the grandfather clause as it is proposed, as well as not having a grandfather clause (i.e. requiring all vessels to install a phase-two technology at their first dry dock after January 1, 2016). Assuming a grandfather period is necessary, what is the appropriate period, and why?

4. Practicability review

We are proposing to require a practicability review, to be published three years prior to the first implementation date for the phase-two BWDS, in order to

determine whether the technology to achieve and verify compliance with the phase-two performance standard can practicably be implemented, in whole or in part, by the applicable compliance date.

This review would seek to determine first whether there was any technology with the verified ability to achieve the phase-two standard. It would examine whether that technology could be practicably made available in time to meet the implementation schedule. This review would then be used to determine whether to allow the phase-two implementation schedule to come into effect, to delay the schedule by some period of time, or to amend the standard and/or schedule to reflect the practicability review conclusions on what performance standards existing or emerging technologies could meet. Any proposed amendments to the standard or the schedule would be done through rule making and could also include consideration of grandfather periods for owners of vessels that have already complied with an earlier standard.

The practicability review would also consider, among other factors, whether testing protocols are available to verify that treatment technologies can be expected to comply with the phase-two performance standard. Development of protocols capable of determining compliance

with the phase-two is a high priority for the Coast Guard. Other factors to be considered could include cost of compliant treatment technologies, and whether any amendments have been made to the IMO Ballast Water Management Convention.

We've also left open the possibility that the practicability review might reveal that a more stringent standard between the proposed phase-one and the phase-two BWDS is achievable. We also allow for the possibility that technology might be capable of achieving a standard that is more stringent than what we have proposed as the phase-two BWDS. In the event the IMO BWM Convention standard is subsequently raised, we would expect at least a matching increase in the domestic standard. In these cases, we would propose to revise this regulation to amend either the implementation timeline or the phase-two standard, or both, at the time that we publicize the results of our practicability review.

5. Other proposed amendments to 33 CFR part 151

In subpart C, we would add relevant definitions. In subpart D, we would add definitions, revise the provision allowing for discharge of ballast water in extraordinary circumstance (previously known as the "safety" exemption), and add a requirement for the vessel owner or operator to

maintain the BWMS certificate of approval onboard the vessel. Additionally, we would reorganize subpart D and revise all section headings to remove the current question-and-answer format.

B. Approval Program

The Coast Guard proposes to add requirements for the approval of BWMS. These requirements would be added to 46 CFR Subchapter Q, by creating a new subpart 162.060, "Ballast Water Management Systems". In this new subpart, we would establish an approval program, including requirements for designing, installing, operating, and testing BWMS to ensure these systems meet required safety and performance standards. These proposed approval requirements use information from the IMO G8 Guidelines for type approval of BWMS under the BWM Convention, the Protocols for Verification of Ballast Water Treatment Systems developed under EPA's Environmental Technology Verification (ETV) Program, and existing Coast Guard approval requirements for equipment installed onboard vessels.

1. Section-by-section summary of Changes to 46 CFR Subchapter Q Part 162

In proposed § 162.060-1, we describe the purpose and scope of the approval requirements.

In proposed § 162.060-3, we define the terms used in the subpart.

In proposed § 162.060-5, we list those standards which we propose to incorporate by reference into the regulations.

In proposed § 162.060-10, we describe the content requirements for a manufacturer submitting a Letter of Intent to the Coast Guard stating that the manufacturer intends to begin testing of its BWMS in order to obtain Coast Guard approval. We also describe the specific procedures for obtaining approval of a BWMS.

In proposed § 162.060-12, we provide equivalent approval procedures. First, a manufacturer whose BWMS has been approved by a Foreign Administration may request a written determination from the Coast Guard's Marine Safety Center that such approval by a Foreign Administration is equivalent to a Coast Guard approval.

Second, we recognize the importance of experimental shipboard testing of prototype BWMS, and further recognize that shipboard testing programs of prototype systems may be more intensive than the requirements proposed in this subpart. We do not want to create redundant requirements for BWMS already entered into recognized national or international shipboard testing programs, as this would

constitute a disincentive for participation in these programs. Therefore, this section allows for a manufacturer whose BWMS is undergoing such shipboard testing under a recognized national program to request an equivalency for the shipboard testing requirements. In this case, the manufacturer would request an equivalency determination from the Coast Guard's Marine Safety Center by submitting a description of the BWMS, the specific information on the vessel where the shipboard testing would occur, the testing protocols, and information about the goals and expected results of the testing project, as well as a full description of the recognized program under which the testing is taking place. If a manufacturer is removed from one of these programs, the manufacturer would need to make the appropriate arrangements in order to comply with the requirements of proposed § 162.060-28.

Finally, if a manufacturer has already conducted a substantial amount of land-based and/or shipboard testing independent of the requirements of this subpart, the Coast Guard's Marine Safety Center may make an equivalency determination. The manufacturer would submit a written request for such a determination to the Coast Guard's Marine Safety Center.

In proposed § 162.060-14, we describe the content requirements of an application for Coast Guard approval of a BWMS. This section states that each item requiring approval would be the subject of a separate application.

In proposed § 162.060-16, we describe the procedures that would be followed if the design or conditions of the original approval changes, if a manufacturer wishes to change the design or conditions of an approved system, or if the Coast Guard determines that an approval or conditions of approval are no longer valid under the provisions of proposed § 162.060-14.

In proposed § 162.060-18, we state that the Coast Guard may suspend, withdraw, or terminate approval of a BWMS if it is:

- Not in compliance with the requirements of approval;
- Unsuitable for its intended purpose;
- Not in compliance with the requirements of other applicable laws, rules, and/or regulations;
- No longer being manufactured or supported; or
- Under an approval that expires.

In proposed § 162.060-20, we describe design and construction requirements for BWMS. The IMO's Marine Environment Protection Committee (MEPC) Technical

Specifications in section 4 of MEPC 125(53), "Guidelines for Approval of Ballast Water Management Systems" provide a basis for the proposed requirements. The proposed requirements also refer to the applicable design and material requirements in the Coast Guard marine and electrical engineering regulations found in 46 CFR subchapters F and J, respectively.

In proposed § 162.060-22, we outline the marking requirements for an approved BWMS.

In proposed § 162.060-24, we describe the requirements and format of the test plans that would be required to be prepared prior to conducting each test required by this subpart.

In proposed § 162.060-26, we describe the land-based testing and evaluation requirements for BWMS approval. MEPC 125(53), "Guidelines for Approval of Ballast Water Management Systems" provides a basis for the proposed requirements. The proposed requirements also incorporate findings from the draft Environmental Technology Verification (ETV) protocols of the EPA's ETV Program. These tests are designed to assess the ability of a BWMS to meet the BWDS proposed in 33 CFR part 151 subparts C and D, evaluate the suitability of the system for shipboard

installation, and validate the operating and maintenance parameters presented by the manufacturer.

In proposed § 162.060-28, we describe the shipboard testing requirements that would have to be completed in addition to the land-based testing requirements for Coast Guard approval of a BWMS.

In proposed § 162.060-30, we describe tests that would be conducted on all electrical components submitted for approval as part of the complete BWMS. These tests assess whether BWMS components would operate properly for an extended period of time under harsh shipboard operating and environmental conditions. The Independent Laboratory (IL) would conduct all approval tests and evaluations under this subpart for the applicant. The results of these tests must be included in the final Test Report.

In proposed § 162.060-32, we describe the requirements for any BWMS that utilizes or generates an active substance or preparation.

In proposed § 162.060-34, we describe the required contents of the Test Report, format of the Test Report, and the IL's responsibilities for completing the Test Report and submitting all required information to the Coast Guard.

In proposed § 162.060-36, we describe the requirements of the Quality Assurance Project Plans that the IL would develop and be required to follow.

In proposed § 162.060-38, we describe the requirements for an Operation, Maintenance, and Safety Manual (OMSM) that the manufacturer would prepare and submit along with the application for approval specified in this subpart. This OMSM would need to be kept onboard each vessel with an approved BWMS.

In proposed § 162.060-40, we describe how ILs would obtain recognition by the Coast Guard.

2. Discussion of Previous Comments on the Approval Program

On August 5, 2004, the Coast Guard published a notice in the Federal Register with a request for comments regarding, among other things, whether proposing an approval program alongside a BWDS would be necessary. 69 FR 47453. The Coast Guard further asked commenters to identify, if they supported an approval program, what type of testing procedures should be developed and what issues should be addressed; such as water resources, water quality conditions, and any other environmental conditions. We received 8 comments related to the establishment of an approval program and discuss them below.

Two commenters stated the Coast Guard should not require shipboard testing. Both commenters stated that the Coast Guard has a long history of providing onshore testing of equipment for Coast Guard approval, and they saw no reason to depart from the practice. One commenter also disagreed with shipboard testing due to logistical difficulty, time delay, and expense.

The Coast Guard disagrees. Land-based testing alone does not always simulate long-term shipboard conditions. Moreover, the BWM Convention G8 type-approval guidelines employ both land-based and ship-based testing of BWMS. Therefore, the Coast Guard has proposed shipboard testing requirements in this rulemaking.

One commenter stated that on-shore testing will need to be adaptable because various technologies may require their own individualized regimen of tests.

The Coast Guard agrees that test facilities must be adaptable for different types of technologies, but we disagree that each technology will require its own individualized regimen of tests during land-based testing. To the greatest degree possible, test facilities must employ standard test protocols to ensure that different technologies, tested at different facilities and times, undergo the same level of testing. Through the EPA's ETV

program, stakeholder reviews, and partnerships with the Naval Research Laboratory, we developed the standard protocols for land-based tests found in this regulation. The basic parameters we would incorporate for shipboard testing, however, allow the IL to design tests that address specific needs of varying BWMS employing different technologies.

Two commenters recommended the Coast Guard use ILs to perform approval tests. The Coast Guard agrees with these commenters and has incorporated ILs into the proposed approval process.

One commenter stated the Coast Guard should use its own expertise with the additional resources available from classification societies and EPA to make appropriate decisions, which consider the safety of the vessel and crew as well as the harsh seafaring environment.

The Coast Guard agrees and notes that we developed the BWDS and approval requirements proposed in this notice utilizing existing Coast Guard design and safety requirements, an extensive stakeholder review process within the EPA's ETV program, and guidelines developed by the IMO with input from classification societies.

One commenter stated that whatever testing procedures are ultimately adopted, it is essential that a sufficient

number of laboratories be established so that a given manufacturer's equipment may be evaluated and approved no more than six to eight weeks after its submission to the Coast Guard.

The Coast Guard agrees that a sufficient number of laboratories should be established; however, we disagree with the six to eight week time period for approval after submission. Land based tests conducted by the IL and the statutorily required environmental assessments conducted by the Coast Guard during the approval process would necessitate more than six to eight weeks for complete approval. It is important to note that Coast Guard type approval of a BWMS does not require each individual BWMS to be tested and evaluated. Under the proposed process, a representative system would undergo the rigorous tests for Coast Guard approval, and subsequent BWMS built to the same design and within the rated capacity parameters would only require installation surveys.

C. Enforcement and Compliance

The Coast Guard would conduct enforcement and compliance activities for the BWM program as part of the overall BWM enforcement and compliance program. This program would continue to be conducted as part of regularly scheduled Port State and Flag State exams and inspections,

as well as other continued compliance verification and outreach efforts. All Coast Guard offices involved with BWM compliance would maintain a local training and qualification program for its inspections consistent with guidance provided by Office of Vessel Activities (CG-543), Environmental Standards Division (CG-5224), Areas, Sectors, and Districts.

VI. Incorporation by Reference

Material proposed for incorporation by reference appears in 46 CFR 162.060-5. You may inspect this material at U.S. Coast Guard Headquarters where indicated under ADDRESSES. Copies of the material are available from the sources listed in § 162.060-5.

Before publishing a binding rule, we will submit this material to the Director of the Federal Register for approval of the incorporation by reference.

VII. Regulatory Analysis

We developed this proposed rule after considering numerous statutes and executive orders related to rulemaking. Below we summarize our analysis based on 13 of these statutes or executive orders.

A. Executive Order 12866

This proposed rule is a "significant regulatory action" under section 3(f) of Executive Order 12866,

Regulatory Planning and Review. The Office of Management and Budget has reviewed it under that Order. It requires an assessment of potential costs and benefits under section 6(a)(3) of that Order. A preliminary assessment ("Regulatory Analysis") is available in the docket where indicated under the "Public Participation and Request for Comments" section of this preamble. A summary of the Regulatory Analysis (RA) follows:

The RA provides an evaluation of the economic impacts associated with the implementation of standards limiting the quantities of living organisms in ships' ballast water discharged in U.S. waters. The focus of this assessment is to analyze the costs and benefits of implementing the phase one BWDS, which is the same standard adopted by the IMO in 2004[3].

While the proposed phase one BWDS is practicable to achieve in the near term and will considerably advance environmental protection over the current exchange-based regime, we also recognize that it is not the ultimate endpoint for protection of U.S. waters. We note that a number of states have already adopted BWDS using more stringent standards. The purpose of NISA, as already

[3] International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWM Convention).

noted, is to ensure, to the maximum extent practicable, that NIS are not introduced and spread into U.S. waters. Hence, the Coast Guard is proposing today the adoption of a more stringent standard (phase-two standard) to take effect in 2016. The phase-two standard represents a standard that is potentially 1,000 times more stringent than the phase-one standard. We wish to solicit comments with respect to the following questions (when providing comments, please explain the reasoning underlying your comment and provide citations to and copies of any relevant studies, reports and other sources of information on which you rely):

1. What are the acquisition, installation, operation/maintenance and replacement costs of technological systems that are able to meet more stringent standards? Please provide quantitative cost data specifying complete data sources, type of technology and testing status, and the stringency (at 10x, 100x, and 1000x the IMO standard and for sterilization).

2. Are there technology systems that can be scalable or modified to meet multiple stringency standards after being installed? Please provide quantitative data specifying the technology, necessary modifications (to go to a more stringent standard), costs, and sources of the information.

3. What are the additional costs for vessels compliant with the phase-one standard to go to the phase-two standard? Please provide quantitative cost data specifying complete data sources, type of technology, and possible phase-two stringencies (at 10x, 100x, and 1000x the IMO standard and for sterilization).

4. What are the technology alternatives and costs for smaller coastwise vessel types? Please provide quantitative data specifying the technology and stringency, costs, and sources of the information.

5. What are the additional avoided environmental and social damages and economic benefits of ballast water discharge standards at more stringent standards? Please provide quantitative data and sources for all information.

6. In light of the potentially severe nature of such damages, does the proposed rule ensure to the maximum extent practicable that aquatic nuisance species are not discharged into waters of the United States from vessels, as required by NISA? Would an approach that bypassed phase-one and went directly to the phase-two standards be practicable and provide greater protection of the aquatic environment? Please provide quantitative data and sources to support your response.

For more details on phase one and two BWDS, see the "Discussion of Proposed Rule" section.
For additional details on other alternatives considered for this rulemaking, see the Draft Programmatic Environmental Impact Statement (DPEIS) available on the docket.

Population Affected

This proposed rule would affect vessels operating in U.S. waters that are equipped with ballast tanks. These vessels would be required to install and operate a Coast Guard approved ballast water management system (BWMS) before discharging ballast water into U.S. waters. This would include vessels bound for offshore ports or places. Additionally, whether the vessel traveled 200 nautical miles offshore would not be a factor in determining applicability. This means that some vessels that operated exclusively in the coastwise trade, within the U.S. Exclusive Economic Zone (EEZ), which were previously exempt from having to perform ballast water exchange (BWE), would now be required to meet the ballast water discharge standard (BWDS). See the "Discussion of Proposed Rule" section of the NPRM for applicability of the rule regarding vessel operation.

The primary source of data used in this analysis is the Marine Information for Safety and Law Enforcement

(MISLE) system and Ballast Water Reporting Forms for 2007 submitted to the National Ballast Information Clearinghouse (NBIC), which maintains the reporting and database. MISLE is the Coast Guard database system for information on vessel characteristics, arrivals, casualties, and inspections. The NBIC database provides information on the amount of ballast water discharged in U.S. ports for the range of vessel types calling on U.S. waters. Since October 2004, all vessels, U.S. and foreign, operating in U.S. waters and bound for U.S. ports or places, have been required to submit reports of their BWM practices to the NBIC database. 33 CFR 151.2041.

Approximately 7,575 vessels from the current vessel population, of which 2,616 are U.S. vessels, would be required to meet the BWDS. We propose that full implementation for the phase one BWDS would be required by 2016. The installation requirements would be phased-in for new and existing vessels over the 2012 through 2016 period.

As previously mentioned, the BWDS analyzed in the RA is the same standard as in the 2004 IMO BWM Convention (see the "Discussion of Proposed Rule" section for more information on the ratification of the Convention). For the purposes of the RA, we consider the costs of this

rulemaking to involve U.S. vessels.[4] Nevertheless, we anticipate that the development of treatment technology would involve the world fleet, not the U.S. fleet alone. In order to estimate the cost associated with BWMS on the U.S. fleet, we needed to develop the range of technologies that may be available and the unit costs of these technologies. We assume that there will be a broad market for the new BWMS that includes both U.S. and foreign vessels, thus improving the range of technologies available and the cost efficiencies of production.

Costs

The IMO Convention has spurred development of BWMS designed to meet the IMO discharge standard (phase-one BWDS). Various technologies are being evaluated. Shipboard trials are being conducted for some of these technologies, others are undergoing land-based laboratory testing, while yet others have received type-approval from foreign administrations.

Not all systems are appropriate for all vessel types. Variation in the operational costs relate, in part, to the use of chemicals or other agents in the BWMS and are also due to the treatment of certain discharges not required

[4] The RA presents cost estimates for foreign flag vessels projected to call in U.S. waters.

under current regulations. The BWMS on ships is a new process for which there is minimal operating practical experience, any discussion of the treatment technologies, effectiveness, costs, and operating issues is provisional.

Approximately 4,758 BWMS installations for the U.S. vessels would be required by 2021 because of projected fleet growth. We expect highest annual costs in the period between 2012 and 2016, as the bulk of the existing fleet of vessels must meet the standards according to the phase-in schedule proposed by this rulemaking (see Table 6). The primary cost driver of this rulemaking is the installation costs for all existing vessels. After installation, we estimate operating costs to be substantially less.

Table 6 - Costs to U.S. vessels to comply with Phase-One BWDS*

Year	Installation Cost ($Mil)	Operating Cost ($Mil)	Total Cost ($Mil)
2012	$238.42	$0.18	$238.61
2013	$223.91	$0.34	$224.25
2014	$219.63	$0.48	$220.11
2015	$171.40	$0.59	$171.99
2016	$161.15	$0.68	$161.84
2017	$33.82	$0.66	$34.47
2018	$32.51	$0.63	$33.14
2019	$31.24	$0.61	$31.85
2020	$30.03	$0.58	$30.62
2021	$28.87	$0.56	$29.44
Total	**$1,171.00**	**$5.32**	**$1,176.31**
Annualized	**$166.72**	**$0.76**	**$167.48**

*Present value costs discounted at 7 percent. See RA for additional discount factors. The period of analysis is 10 years (2012-2021). Discounting begins in 2012.

We estimate the first-year cost of this rulemaking to be $239 million based on a 7 percent discount rate. The total costs over the phase-in period (2012-2016) range between $162 million to about $239 million depending on the year. Over the 10-year period of analysis (2012-2021), the total cost of the phase-one BWDS for the U.S. vessels is approximately $1.18 billion using the 7 percent discount rate. Our cost assessment includes existing and new vessels.

Because development and testing of technology to meet the phase-two standards has not progressed as far as for technology to meet the phase-one standards, we are not including cost data for the phase-two standards at this time. In addition to requesting data from the public through this notice (see above), the Coast Guard will seek data from vendors and other sources on the costs of achieving the phase-two standard prior to promulgation of the final rule.

Economic Costs of Invasions of Nonindigenous Species (NIS)

NIS introductions contribute to the loss of marine biodiversity and have associated significant social,

economic, and biological impacts. NIS introductions in U.S. waters are occurring at increasingly rapid rates. Avoided costs associated with future NIS invasions represent one of the benefits of ballast water management (BWM). Economic costs from invasions of NIS range in the billions of dollars annually. Evaluation of these impacts was difficult because of limited knowledge of the patterns and basic processes that influence marine biodiversity. The most extensive review to date on the economic costs of introduced species in the U.S. includes estimates for many types of NIS, and is reflected in Table 7.

Table 7 - Estimated Annual Costs Associated to Aquatic Nonindigenous Species Introduction in the U.S ($2007)

Species	Costs
Fish	$5.7 billion
Zebra and Quagga Mussels	$1.06 billion
Asiatic Clam	$1.06 billion
Aquatic Weeds	$117 million
Green Crab	$47 million

Source: Pimentel, D. et al, 2005. "Update on the environmental and economic costs associated with alien-invasive species in the United States," Ecological Economics. 52:273-288

Though a particular invasion may have small direct economic impacts, the accumulation of these events may cost in the billions of dollars every year. Only a few invasions to date have led to costs in the billions of dollars per year.

Benefits of Ballast Water Discharge Standards (BWDS)

The benefits of BWDS are difficult to quantify because of the complexity of the ecosystem and a lack of understanding about the probabilities of invasions based on prescribed levels of organisms in ballast water. However, evaluation of costs associated with previous invasions (described above) allows a comparison of the cost of discharge standards versus the costs avoided. Because the amount of shipping traffic and the number of incidents of invasions per year are both increasing, historical data provide a lower bound for the basis of benefit evaluation.

We assessed the functional benefits prior to comparing monetary benefit measures. The primary functional benefits of this rulemaking are:

- A reduction in the concentration of all organisms leading to lower numbers of these organisms being introduced per discharge; and
- The elimination of the exemptions in the BWM regulations leading to the discharge of unmanaged ballast water (e.g., safety concerns during exchange, deviation/delay of voyage required to travel to acceptable mid-ocean exchange location).

This overall strategy should reduce the number of new invasions because the likelihood of establishment decreases

with reduced numbers of organisms introduced per discharge or inoculation.

We calculate potential benefits of the BWDS by estimating the number of invasions reduced and the range of economic damage avoided. We use information on the invasion rate of invertebrates from shipping reported by Ruiz et al. (2000) to project the number of future shipping invasions per year. We then estimate the number of fish and aquatic plant invasions based on historical relationships of fish and plant invasions to invertebrate invasions. We then adjust the projected invasions to account for the fraction of invasions that are attributable to ballast water and the fraction of invasions that cause severe economic damage. The resulting projection of the number of ballast water invasions that will cause harm is displayed in Table 8.

Table 8 - Estimated Number of Ballast Water Invasions That Cause Harm

Year	Invertebrate	Fish	Aquatic Plant
2012	0.372	0.074	0.149
2013	0.381	0.076	0.152
2014	0.390	0.078	0.156
2015	0.399	0.080	0.160
2016	0.409	0.082	0.164
2017	0.419	0.084	0.168
2018	0.429	0.086	0.172
2019	0.439	0.088	0.176
2020	0.450	0.090	0.180
2021	0.461	0.092	0.184

Total	4.149	0.830	1.659

To estimate the potential economic harm that may be caused by these invasions, we assign a cost per invasion based on the available data on the range of costs and damages incurred by past invasions. As no comprehensive estimate is available on the costs from past invasions, we do not try to develop a composite cost estimate for all invasions, but instead select a low and high estimate for fish, aquatic plants and invertebrates based on representative species. We then calculate a mid-point for the range and calculate costs for future invasions using all three values. The resulting ranges of costs per invasions are summarized in Table 9.

Table 9 - Range of Annual Costs Associated with Selected NIS Introductions ($Million; $2007)

	Low-Range	Mid-Range	High Range
Fish	$15.8	$160.6	$305.3
Invertebrates	$19.5	$539.8	$1,060
Aquatic Plants	$4.5	$214.6	$424.7

Note: The RA contains additional details and source information.

We assume that once an invasion is established, it will continue to generate costs and/or damages for each year subsequent to the invasion. Thus, an invasion that occurs in the first year of our analysis (2012) will incur costs/damages in each of the next 10 years (through 2021).

Based on the cumulative impacts of invasions, we have calculated a mid-range estimate of annual costs for all harmful ballast water-introduced invasions over the 10 year period of 2012 to 2021 at $2.016 billion at 7 percent discount rate. These estimates assume no BWM.

The Draft Programmatic Environmental Impact Statement (DPEIS) has estimated the reduction in the mean rate of successful introductions of various alternative standards. In comparison with the existing practice of ballast water exchange, the proposed phase-one BWDS (Alternative 2 in the DPEIS) is between 37 percent and 63 percent more effective in preventing invasions when fully implemented (see the DPEIS for further details on effectiveness). We use these estimates of the reduction in the rate of invasions to estimate the economic cost/damage avoided as a result of a BWDS.

As discussed earlier, the implementation of the phase-one BWDS would be phased-in over several years. During the phase-in period of 2012-2016, there is considerable uncertainty as to how effective the measures will be in preventing invasions if only a subset of ships have implemented ballast water management. There is also uncertainty as to the availability and effectiveness of ballast water management technologies. Proper operation of

these new technologies may require training and experience on the part of vessel operators. For these reasons we assume that no invasions will be avoided during the period of 2012-2015, which may lead to an underestimate of potential benefits.

The resulting damages avoided for the phase-one BWDS range from a minimum of $6 million and the maximum is $553 million with a mid-range estimate of $165-$282 million per year at a 7 percent discount rate (Table 10).

Table 10 - Benefits (Costs Avoided) for Phase-One BWDS ($Millions)

	Low Effectiveness - 37%			High Effectiveness - 63%		
Year	Low	Mid	High	Low	Mid	High
2012	$0	$0	$0	$0	$0	$0
2013	$0	$0	$0	$0	$0	$0
2014	$0	$0	$0	$0	$0	$0
2015	$0	$0	$0	$0	$0	$0
2016	$2	$66	$130	$4	$113	$222
2017	$5	$125	$246	$8	$214	$419
2018	$7	$178	$349	$11	$303	$595
2019	$8	$225	$441	$14	$382	$750
2020	$10	$266	$521	$17	$452	$887
2021	$11	$301	$592	$19	$513	$1,008
Total	$43	$1,161	$2,279	$74	$1,977	$3,881
Annualized	$6	$165	$325	$10	$282	$553

Note: Present value costs discounted at 7 percent.

The annualized cost for domestic vessels over the 10-year period of 2012-2021 for the phase one BWDS is estimated at $167 million at a 7 percent discount rate. Thus, quantified benefits are roughly equal to estimated

costs for the mid-point cost estimate of the phase one BWDS "Low Effectiveness."

B. Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601-612), we have considered whether this proposed rule would have a significant economic impact on a substantial number of small entities. The term "small entities" comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000.

An Initial Regulatory Flexibility Analysis (IRFA) discussing the impact of this proposed rule on small entities is available in the docket where indicated under the "Public Participation and Request for Comments" section of this preamble.

Based on available data, we determined that about 57 percent of the businesses affected are small by the Small Business Administration (SBA) size standards. We discovered that these businesses operate almost entirely in coastwise trade and are not involved with larger scale trans-ocean shipping.

Based on our assessment of the impacts from the phase-one BWDS, we determined that some coastwise businesses

would incur a significant economic impact (more than 1 percent impact on revenue) during the installation and phase-in period based. After installation, however, most small businesses would not incur a significant impact from the estimated annual recurring operating costs. We have determined that this proposed rule would have a significant economic impact on a substantial number of small entities under section 605(b) of the Regulatory Flexibility Act.

C. Assistance for Small Entities

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Public Law 104-121), we want to assist small entities in understanding the rule so that they can better evaluate its effects on them and participate in the rulemaking. If the rule would affect your small business, organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please consult Mr. John Morris, Project Manager, telephone 202-372-1433. The Coast Guard will not retaliate against small entities that question or complain about this proposed rule or any policy or action of the Coast Guard.

Small businesses may send comments on the actions of Federal employees who enforce, or otherwise determine compliance with, Federal regulations to the Small Business

and Agriculture Regulatory Enforcement Ombudsman and the Regional Small Business Regulatory Fairness Boards. The Ombudsman evaluates these actions annually and rates each agency's responsiveness to small business. If you wish to comment on actions by employees of the Coast Guard, call 1-888-REG-FAIR (1-888-734-3247).

D. Collection of Information

This proposed rule would call for no new collection of information under the Paperwork Reduction Act (PRA) of 1995 (44 U.S.C. 3501-3520).

Our research indicates that there are 25-30 manufacturers developing BWMS for installation onboard vessels.[5] We expect to receive less than 10 system approval requests per year. This figure is less than the threshold of 10 per twelve-month period for collection of information reporting purposes under the PRA of 1995.

E. Federalism

A rule has implications for federalism under Executive Order 13132, Federalism, if it has a substantial direct effect on State or local governments and would either

[5] Sources: Lloyds Register Report, Ballast Water Treatment Technology-Current Status, September 2008; and California State Lands Commission Report, Assessment of the Efficacy, Availability, and Environmental Impacts of Ballast Water Treatment Systems in California Waters, January 2009.

preempt State law or impose a substantial direct cost of compliance on them.

We have analyzed this proposed rule under that Order and have determined that it does not have implications for federalism. NANPCA, as reauthorized and amended by NISA, contains a "savings provision" that saves to the states their authority to "adopt or enforce control measures for aquatic nuisance species, [and nothing in the Act would] diminish or affect the jurisdiction of any States over species of fish and wildlife." 16 U.S.C. 4725. It also requires that "all actions taken by Federal agencies in implementing the provisions of [the Act] be consistent with all applicable Federal, State and local environmental laws." Thus, the congressional mandate is clearly for a Federal-State cooperative regime in combating the introduction of aquatic nuisance species into U.S. waters from ships' ballast tanks. This makes it unlikely that preemption, which would necessitate consultation with the States under Executive Order 13132, would occur. If, at some later point in the rulemaking process, we determine that preemption may become an issue, we would develop a plan for consultation with affected states/localities.

F. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531-1538) requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100,000,000 or more in any one year. This proposed rule would result in such an expenditure, and we have included an "Unfunded Reform Act Statement" in the Regulatory Assessment (Section 7), located in the docket where indicated under the "Public Participation and Request for Comments" section of this preamble.

G. Taking of Private Property

This proposed rule would not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

H. Civil Justice Reform

This proposed rule meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

I. Protection of Children

We have analyzed this proposed rule under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. Though this proposed rule is economically significant, it would not create an environmental risk to health or risk to safety that might disproportionately affect children.

J. Indian Tribal Governments

This proposed rule does not have tribal implications under Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.

K. Energy Effects

We have analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. We have determined that it is not a "significant energy action" under that order. Though it is a "significant regulatory action" under Executive Order 12866, it is not likely to have a significant adverse effect on the supply,

distribution, or use of energy. The Administrator of the Office of Information and Regulatory Affairs has not designated it as a significant energy action. Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

L. Technical Standards

The National Technology Transfer and Advancement Act (NTTAA) (15 U.S.C. 272) directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through the Office of Management and Budget, with an explanation of why using these standards would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., specifications of materials, performance, design, or operation; test methods; sampling procedures; and related management systems practices) that are developed or adopted by voluntary consensus standards bodies.

This proposed rule would incorporate a number of technical standards, all of which are voluntary consensus standards. These may be found in the proposed approval program amendments to 46 CFR part 162. Additionally, the proposed phase-one ballast water discharge standard is also, at least for the time being, a voluntary consensus

standard. While the IMO BWM Convention has been adopted, it has not been ratified by enough countries to bring it into force as an international requirement. The phase-two standard is not a voluntary consensus standard, but it is a standard that has been adopted by a number of states.

M. Environment

We have analyzed this proposed rule under Department of Homeland Security Management Directive 023-01 and Commandant Instruction M16475.lD, which guide the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA)(42 U.S.C. 4321-4370f), and have made a determination that that this action may have a significant effect on the human environment. A Draft Programmatic Environmental Impact Statement (DPEIS) is available in the docket where indicated under the Public Participation and Request for Comments section of this preamble. We encourage the public to submit comments on the DPEIS.

On October 27, 2006, we initiated informal consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) regarding this proposed rule in accordance with Section 7 of the Endangered Species Act of 1973 (ESA) (P.L. 93-205, 81 Stat. 884, as amended; 16 USC 1531 et seq.) to ensure that our actions are not likely to jeopardize the continued

existence of listed and proposed endangered and threatened species or result in the destruction or adverse modification of critical habitat. The consultation and determinations will be reflected in the Final Programmatic Environmental Impact Statement (FPEIS).

We initiated informal consultation with NMFS regarding this proposed rule in accordance with the Magnuson-Stevens Act (P.L. 94-265, as amended; 16 U.S.C. 1801 et seq.) to demonstrate that our actions are not likely to affect essential fish habitat (EFH). The DPEIS addresses the potential effects the proposed rule would have on EFH and the FPEIS will contain a written assessment describing the effects of our actions on EFH (50 CFR 600.920(e)(1)).

We will seek Federal Consistency Determinations for 29 States and 5 U.S. Territories regarding this proposed rule as required by the Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C.A. §1451-1465). Each federal consistency determination letter will explain to each State and U.S. Territories that the USCG's action is consistent, to the maximum extent practicable, with the enforceable polices of each State's and U.S. Territories approved CZM plan.

As previously discussed in Section V.A.2. of this preamble, the DPEIS includes a number of alternative discharge standards, with Alternatives 3 and 4 establishing

more stringent limits on concentrations of living organisms in ships' ballast water than today's proposed phase-one BWDS, and Alternative 5 requiring the removal or inactivation of all living membrane-bound organisms (including bacteria and some viruses) larger than 0.1 micron (this is essentially sterilization). We recognize, however, that there is uncertainty regarding the data used to complete the analysis for these more stringent standards. We specifically request public comment on these and other alternatives (e.g., standards proposed or adopted by various states in their legislation or via the states' certification under EPA's VGP, our proposed phase-two standard). While we welcome comment on all aspects of alternative BWDS, we particularly wish to solicit comment with respect to the following matters. When providing comments, please explain the reasoning underlying your comment and provide citations to and copies of any relevant studies, reports, or scientific literature on which you rely.

1. What BWDS is sufficient to adequately safeguard against the introduction of species into U.S. waters via ships' ballast water? Should the standard provide for zero risk of spreading invasive species via ballast water (e.g. zero living organisms), or should the standard be one that

substantially mitigates any risk, but may not eliminate the possibility of species being introduced?

2. For any BWDS identified in response to (1), what is the evidence that the systems can meet either of the BWDS proposed in this NPRM, and what are the timeframes by which such BWDS can be achieved and what technologies are, or will be, available to meet such BWDS?

3. For any BWDS identified in response to (1), what are the costs of such systems for various classes of ships and under differing operating conditions? Additionally, what are power requirements on board those vessels and what additional chemical storage requirements and other space requirements are needed on board those vessels?

4. Any studies that exist on the effects of propagule pressure on successful establishment of a NIS in aquatic ecosystems.

5. What are the advantages and disadvantages of a ballast water discharge standard that is more stringent than the IMO standard? Please provide quantitative data and sources of the information.

List of Subjects

33 CFR Part 151

Administrative practice and procedure, Ballast water management, Oil pollution, Penalties, Reporting and

recordkeeping requirements, Water pollution control, Ballast water management.

46 CFR Part 162

Ballast water management, Fire prevention, Incorporation by reference, Marine safety, Oil pollution, Reporting and recordkeeping requirements.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR part 151 and 46 CFR part 162 as follows:

Title 33—Navigation and Navigable Waters

CHAPTER I—COAST GUARD, DEPARTMENT OF HOMELAND SECURITY

Subchapter O—Pollution

PART 151—VESSELS CARRYING OIL, NOXIOUS LIQUID SUBSTANCES, GARBAGE, MUNICIPAL OR COMMERCIAL WASTE, AND BALLAST WATER

Subpart C—Ballast Water Management for Control of Nonindigenous Species in the Great Lakes and Hudson River

1. The authority citation for subpart C continues to read as follows:

Authority: 16 U.S.C. 4711; Department of Homeland Security Delegation No. 0170.1.

2. In § 151.1504, add, in alphabetical order, definitions for the terms "Ballast Water Management System (BWMS)" and "Build date" to read as follows:

§ 151.1504 Definitions.

* * * * *

Ballast Water Management System (BWMS) means any system which processes ballast water to kill or remove organisms. The BWMS includes all ballast water treatment equipment and all associated control and monitoring equipment.

* * * * *

Build date means the date when construction identifiable with the specific vessel begins; or assembly of the vessel has commenced comprising at least 50 tons or 1 percent of the estimated mass of all structural material, whichever is less; or the ship undergoes a major conversion.

* * * * *

3. Add § 151.1505 to read as follows:

§ 151.1505 Severability.

If a court finds any portion of this subpart to have been promulgated without proper authority, the remainder of this subpart will remain in full effect.

4. Revise § 151.1510(a)(1) and (3) to read as follows:

§ 151.1510 Ballast water management.

(a) * * *

(1) Carry out an exchange of ballast water on the waters beyond the EEZ, from an area more than 200 nautical miles from any shore, and in waters more than 2,000 meters

(6,560 feet, 1,093 fathoms) deep, prior to entry into the Snell Lock, at Massena, New York, or prior to navigating on the Hudson River, north of the George Washington Bridge, such that, at the conclusion of the exchange, any tank from which ballast water will be discharged contains water with a minimum salinity level of 30 parts per thousand, unless the vessel is required to implement an approved BWMS per the schedule found in §151.1512 of this subpart.

* * * * *

(3) Use a ballast water management system (BWMS) that has been approved by the Coast Guard. Requests for approval of BWMS must be submitted to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593.

(i) Requirements for approval of BWMS are found in 46 CFR Part 162.060-10.

(ii) Unless otherwise expressly provided for in this subpart, the master, owner, operator, agent, or person-in-charge of vessels employing a Coast Guard approved BWMS must, at all times of discharge into the waters of the United States, meet the applicable ballast water discharge standard (BWDS) found in § 151.1511 of this subpart.

* * * * *

5. Add § 151.1511 to read as follows:

§ 151.1511 Ballast water discharge standard (BWDS).

(a) Vessels employing a Coast Guard approved BWMS must meet the following phase-one BWDS by the date listed in Table 151.1512(b) in section 151.1512 of this subpart:

(1) For organisms larger than 50 microns in minimum dimension: discharge less than 10 per cubic meter of ballast water;

(2) For organisms equal to or smaller than 50 microns and larger than 10 microns: discharge less than 10 per milliliter (ml) of ballast water; and

(3) Indicator microorganisms must not exceed:

(i) For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of < 1 colony forming unit (cfu) per 100 ml;

(ii) For *Escherichia coli*: a concentration of < 250 cfu per 100 ml; and

(iii) For intestinal enterococci: a concentration of < 100 cfu per 100 ml.

(b) Vessels employing a Coast Guard approved BWDS must meet the following phase-two BWDS by the date listed in Table 151.1512(c) in section 151.1512 of this subpart:

(1) For organisms larger than 50 microns in minimum dimension: discharge less than 1 per 100 cubic meter of ballast water;

(2) For organisms equal to or smaller than 50 microns and larger than 10 microns: discharge less than 1 organism per 100 milliliter (ml) of ballast water;

(3) For organisms less than 10 microns in minimum dimension:

(i) Discharge less than 103 living bacterial cells per 100 ml of ballast water; and

(ii) Discharge less than 104 viruses or viral-like particles per 100 ml of ballast water; and

(4) Indicator microorganisms must not exceed:

(i) For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of < 1 colony forming unit (cfu) per 100 ml;

(ii) For *Escherichia coli*: a concentration of < 126 cfu per 100 ml; and

(iii) For intestinal enterococci: a concentration of < 33 cfu per 100 ml.

(c)(1) The Coast Guard shall, at least three years prior to the first compliance date set forth in Table 151.1512(c) in section 151.1512 of this subpart, publish

the results of a practicability review to determine whether--

(i) Technology to comply with the performance standard required under paragraph (b) of this section can practicably be implemented, in whole or in part, by the applicable compliance dates; and

(ii) Testing protocols that can assure accurate measurement of compliance with the performance standard required under paragraph (b) of this section can practicably be implemented.

(2) If the Coast Guard cannot make a determination under paragraph (c)(1) of this section for some or all elements of the performance standard listed in paragraph (b) of this section, the Coast Guard shall, at the same time that it publishes the results of the practicability review, extend the initial compliance date, in accordance with the Administrative Procedure Act, in Table 151.1512(c) for the applicable elements of the performance standard, taking into consideration the findings of the practicability review.

(3) If the Coast Guard cannot make a determination under paragraph (c)(1) of this section for some or all elements of the performance standard under paragraph (b) of this section, the Coast Guard shall update the

practicability review, consistent with the requirements of paragraph (c)(1) of this section, as appropriate, but at least every two years, until the performance standard under paragraph (b) of this section is fully implemented.

(4) If the Coast Guard finds, as a result of a practicability review under either paragraphs (c)(1) or (c)(3) of this section, that technology to achieve a significant improvement in treatment efficacy, either greater or less than the efficacy of the performance standards in paragraph (b) of this section can practicably be implemented, as outlined in paragraph (c)(1) of this section, the Coast Guard shall report this finding in the practicability review and propose an appropriate revision to the applicable requirements of this subpart.

6. Redesignate § 151.1512 as § 151.1513, and add a new § 151.1512 to read as follows:

§ 151.1512 Implementation schedule.

(a) The master, owner, operator, agent, or person-in-charge of the vessel subject to this subpart and wishing to discharge ballast within U.S. waters must install and operate a Ballast Water Management System (BWMS) approved by the Coast Guard under 46 CFR part 162 in accordance with Table 151.1512(b) "Implementation Schedule for the Phase-One Ballast Water Management Program" of this section and

Table 151.1512(c) "Implementation Schedule for the Phase-Two Ballast Water Management Program" of this section, as applicable. Following installation, the master, owner, operator, agent, or person-in-charge of the vessel subject to this subpart must properly maintain the BWMS in accordance with all manufacturer specifications.

(b) Table 151.1512(b) Implementation Schedule for the Phase-One Ballast Water Management Program

Vessel's Ballast Water Capacity (cubic meters, m^3)		**Vessel's Construction Date**	**Vessel's Compliance Date**
New vessels	All	On or after January 1, 2012	On delivery
Existing vessels	Less than 1500	Before January 1, 2012	First drydocking after January 1, 2016
	1500-5000	Before January 1, 2012	First drydocking after January 1, 2014
	Greater than 5000	Before January 1, 2012	First drydocking after January 1, 2016

(c) Table 151.1512(c) Implementation Schedule for the Phase-Two Ballast Water Management Program

Vessel's Ballast Water Capacity (cubic meters, m^3)	**Vessel's Construction Date**	**Vessel's Compliance Date**

New vessels	All	On or after January 1, 2016	On delivery
Existing vessels	All	Before January 1, 2016	First drydocking after January 1, 2016, UNLESS the vessel installed a BWMS meeting the phase-one standard before January 1, 2016, then 5 years after installation of the BWMS meeting the phase-one standard

7. Revise § 151.1516(a) to read as follows:

§ 151.1516 Compliance Monitoring.

(a) The master of each vessel equipped with ballast tanks must provide, as detailed in § 151.2070, the following information, in written form, to the COTP.

* * * * *

8. Revise Subpart D to read as follows:

Subpart D--Ballast Water Management for Control of Nonindigenous Species in Waters of the United States

Sec.

Authority: 16 U.S.C. 4711; Department of Homeland Security Delegation No. 0170.1.

Subpart D--Ballast Water Management for Control of Nonindigenous Species in Waters of the United States

§ 151.2000 Purpose and scope.

This subpart implements the provisions of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA) (16 U.S.C. 4701-4751), as amended by the National Invasive Species Act of 1996 (NISA).

§ 151.2005 Definitions.

(a) Unless otherwise stated in this section, the definitions in 33 CFR 151.1504, 33 CFR 160.203, and the United Nations Convention on the Law of the Sea apply to this part.

(b) As used in this part—

ANSTF means the Aquatic Nuisance Species Task Force mandated under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA).

Ballast tank means any tank or hold on a vessel used for carrying ballast water, whether or not the tank or hold was designed for that purpose.

Ballast Water Management System (BWMS) means any system which processes ballast water to kill or remove organisms. The BWMS includes all ballast water treatment equipment and all associated control and monitoring equipment.

Build date means the date when construction identifiable with the specific vessels begins; or assembly of the vessel has commenced comprising at least 50 tons or 1 percent of the estimated mass of all structural material, whichever is less; or the ship undergoes a major conversion.

Captain of the Port (COTP) means the Coast Guard officer designated by the Commandant to command a Captain of the Port Zone as described in part 3 of this chapter.

Exchange means to replace the water in a ballast tank using one of the following methods:

(1) Flow through exchange means to flush out ballast water by pumping in mid-ocean water at the bottom of the

tank and continuously overflowing the tank from the top until three full volumes of water has been changed—to minimize the number of original organisms remaining in the tank.

(2) Empty/refill exchange means to pump out the ballast water taken on in ports, estuarine, or territorial waters until the tank is empty, then refilling it with mid-ocean water. Masters or operators should pump out as close to 100 percent of the ballast water as is safe to do so.

Exclusive economic zone (EEZ) means the area established by Presidential Proclamation Number 5030, dated March 10, 1983 (48 FR 10605, 3 CFR, 1983 Comp., p. 22), which extends from the base line of the territorial sea of the United States seaward 200 nautical miles, and the equivalent zone of Canada.

IMO guidelines mean the Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens (IMO Resolution A.868 (20), adopted November 1997).

NANPCA means the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990.

NBIC means the National Ballast Information Clearinghouse operated by the Coast Guard and the

Smithsonian Environmental Research Center as mandated under NISA.

NISA means the National Invasive Species Act of 1996, which reauthorized and amended NANPCA.

NIS reduction practices means non-ballast water management practices that vessels employ to reduce NIS introductions into U.S. waters.

Port or place of departure means any port or place in which a vessel is anchored or moored.

Port or place of destination means any port or place to which a vessel is bound to anchor or moor.

Shipboard Technology Evaluation Program (STEP) means a Coast Guard research program intended to facilitate research, development, and shipboard testing of effective BWMS. STEP requirements are located at: http://www.uscg.mil/environmental_standards/.

United States means the States, the District of Columbia, Guam, American Samoa, the Virgin Islands, the Commonwealth of Puerto Rico, and the Trust Territory of the Pacific Islands.

Voyage means any transit by a vessel destined for any United States port or place.

Waters of the United States means waters subject to the jurisdiction of the United States as defined in 33 CFR

§ 2.38, including the navigable waters of the United States. For 33 Code of Federal Regulations Part 151, subparts C and D, the navigable waters include the territorial sea as extended to 12 nautical miles from the baseline, pursuant to Presidential Proclamation No. 5928 of December 27, 1988.

§ 151.2010 Applicability.

This subpart applies to all vessels, U.S. and foreign, equipped with ballast tanks, that operate in the waters of the United States except as expressly provided in 151.2020.

§ 151.2013 Severability.

If a court finds any portion of this subpart to have been promulgated without proper authority, the remainder of this subpart will remain in full effect.

§ 151.2015 Exemptions.

(a) The following vessels are exempt from the requirements of this subpart:

(1) Department of Defense or Coast Guard vessels subject to the requirements of section 1103 of the Nonindigenous Aquatic Nuisance Prevention and Control Act as amended by the National Invasive Species Act, or any vessel of the Armed Forces, as defined in the Federal Water Pollution Control Act (33 U.S.C. 1322(a)) that is subject

to the "Uniform National Discharge Standards for Vessels of the Armed Forces" (33 U.S.C. 1322(n)); and

(2) Any warship, naval auxiliary, or other vessel owned or operated by a foreign state, and used, for the time being, only on government non-commercial service. However, each such foreign state shall ensure that such vessels act in a manner consistent, so far as is reasonable and practicable, with this subpart.

(b) Crude oil tankers engaged in coastwise trade are exempt from the requirements of §§ 151.2025, 151.2060, and 151.2070 of this subpart.

(c) A vessel that operates exclusively within one Captain of the Port (COTP) Zone is exempt from the requirements in §§ 151.2060 and 151.2070 of this subpart.

§ 151.2020 Vessels in innocent passage.

A foreign vessel merely traversing the territorial sea of the U.S. (i.e., not bound for, entering or departing a U.S. port, or not navigating the internal waters of the U.S.) does not fall within the applicability of this subpart.

§ 151.2025 Ballast water management requirements.

(a) The master, owner, operator, agent, or person-in-charge of a vessel must:

(1) Use a ballast water management system (BWMS) that has been approved by the Coast Guard under 46 CFR part 162;

(2) Retain ballast water onboard the vessel; or

(3) Perform complete ballast water exchange in an area 200 nautical miles from any shore prior to discharging ballast water in U.S. waters, unless the vessel is required to implement an approved BWMS per the schedule found in §151.2035 of this subpart.

(b) Requests for approval of BWMS must be submitted to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593, in accordance with 46 CFR part 162.

(c) A vessel engaged in the foreign export of Alaskan North Slope Crude Oil must comply with §§ 151.2060 and 151.2070 of this subpart, as well as with the provisions of 15 CFR 754.2(j)(1)(iii). Section 15 CFR 754.2(j)(1)(iii) requires a mandatory program of deep water ballast exchange unless doing so would endanger the safety of the vessel or crew.

(d) This subpart does not authorize the discharge of oil or noxious liquid substances (NLS) in a manner prohibited by United States or international laws or regulations. Ballast water carried in any tank containing

a residue of oil, NLS, or any other pollutant must be discharged in accordance with applicable regulations.

(e) This subpart does not affect or supersede any requirement or prohibition pertaining to the discharge of ballast water into the waters of the United States under the Federal Water Pollution Control Act (33 U.S.C. 1251 to 1376).

(f) This subpart does not affect or supersede any requirement or prohibition pertaining to the discharge of ballast water into the waters of the United States under the National Marine Sanctuaries Act (16 U.S.C. 1431 et seq.).

(g) Vessels with installed BWMS for testing and evaluation by an accepted Independent Laboratory in accordance with the requirements of 46 CFR 162.060-10 will be deemed to be in compliance with paragraph (a)(1) of this section.

§ 151.2030 Ballast water discharge standard (BWDS).

(a) Unless otherwise expressly provided for in this subpart, the master, owner, operator, agent, or person-in-charge of a vessel must ensure that vessels employing a Coast Guard approved Ballast Water Management System (BWMS) must, at all times of discharge into waters of the United

States, meet the following phase-one BWDS by the date listed in Table 151.2035(b) in section 151.2035 of this subpart:

(1) For organisms larger than 50 microns in minimum dimension: discharge less than 10 per cubic meter of ballast water.

(2) For organisms equal to or smaller than 50 microns and larger than 10 microns: discharge less than 10 per milliliter (ml) of ballast water.

(3) Indicator microorganisms must not exceed:

(i) For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of < 1 colony forming unit (cfu) per 100 ml;

(ii) For *Escherichia coli*: a concentration of < 250 cfu per 100 ml; and

(iii) For intestinal enterococci: a concentration of < 100 cfu per 100 ml.

(b) Unless otherwise expressly provided for in this subpart, the master, owner, operator, agent, or person-in-charge of a vessel must ensure that vessels employing a Coast Guard approved BWMS must, at all times of discharge into waters of the United States, meet the following phase-two BWDS by the date listed in Table 151.2035(c) in section 151.2035 of this subpart:

(1) For organisms larger than 50 microns in minimum dimension: discharge less than 1 per 100 cubic meter of ballast water;

(2) For organisms equal to or smaller than 50 microns and larger than 10 microns: discharge less than 1 organism per 100 milliliter (ml) of ballast water;

(3) For organisms less than 10 microns in minimum dimension:

(i) Discharge less than 10^3 living bacterial cells per 100 ml of ballast water; and

(ii) Discharge less than 10^4 viruses or viral-like particles per 100 ml of ballast water; and

(4) Indicator microorganisms must not exceed:

(i) For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of < 1 colony forming unit (cfu) per 100 ml;

(ii) For *Escherichia coli*: a concentration of < 126 cfu per 100 ml; and

(iii) For intestinal enterococci: a concentration of < 33 cfu per 100 ml.

(c)(1) The Coast Guard shall, at least three years prior to the first compliance date set forth in Table 151.2035(c) in section 151.1512 of this subpart, publish

the results of a practicability review to determine whether--

(i) Technology to comply with the performance standard required under paragraph (b) of this section can practicably be implemented, in whole or in part, by the applicable compliance dates; and

(ii) Testing protocols that can assure accurate measurement of compliance with the performance standard required under paragraph (b) of this section can practicably be implemented.

(2) If the Coast Guard cannot make a determination under paragraph (c)(1) of this section for some or all elements of the performance standard listed in paragraph (b) of this section, the Coast Guard shall, at the same time that it publishes the results of the practicability review, extend the initial compliance date, in accordance with the Administrative Procedure Act, in Table 151.2035(c) for the applicable elements of the performance standard, taking into consideration the findings of the practicability review.

(3) If the Coast Guard cannot make a determination under paragraph (c)(1) of this section for some or all elements of the performance standard under paragraph (b) of this section, the Coast Guard shall update the

practicability review, consistent with the requirements of paragraph (c)(1) of this section, as appropriate, but at least every three years, until the performance standard under paragraph (b) of this section is fully implemented.

(4) If the Coast Guard finds, as a result of a practicability review under either paragraphs (c)(1) or (c)(3) of this section, that technology to achieve a significant improvement in treatment efficacy, either greater or less than the efficacy of the performance standards in paragraph (b) of this section can practicably be implemented, as outlined in paragraph (c)(1) of this section, the Coast Guard shall report this finding in the practicability review and propose an appropriate revision to the applicable requirements of this subpart.

§ 151.2035 Implementation schedule for approved ballast water management systems (BWMS).

(a) The master, owner, operator, agent, or person-in-charge of a vessel subject to this subpart and wishing to discharge ballast within U.S. waters must install and operate a Ballast Water Management System (BWMS) approved by the Coast Guard under 46 CFR part 162 in accordance with Table 151.2035(b) "Implementation Schedule for the Phase-One Ballast Water Management Program" of this section and

Table 151.2035(c) "Implementation Schedule for the Phase-Two Ballast Water Management Program" of this section, as applicable. Following installation, the master, owner, operator, agent, or person-in-charge of the vessel subject to this subpart must properly maintain the BWMS in accordance with all manufacturer specifications.

(b) Table 151.2035 (b) Implementation Schedule for the Phase-One Ballast Water Management Program

Vessel's Ballast Water Capacity (cubic meters, m^3)		**Vessel's Construction Date**	**Vessel's Compliance Date**
New vessels	All	On or after January 1, 2012	On delivery
Existing vessels	Less than 1500	Before January 1, 2012	First drydocking after January 1, 2016
	1500-5000	Before January 1, 2012	First drydocking after January 1, 2014
	Greater than 5000	Before January 1, 2012	First drydocking after January 1, 2016

(c) Table 151.2035(c) Implementation Schedule for the Phase-Two Ballast Water Management Program

Vessel's Ballast Water Capacity (cubic meters, m^3)	**Vessel's Construction Date**	**Vessel's Compliance Date**

New vessels	All	On or after January 1, 2016	On delivery
Existing vessels	All	Before January 1, 2016	First drydocking after January 1, 2016, UNLESS the vessel installed a BWMS meeting the phase-one standard before January 1, 2016, then 5 years after installation of the BWMS meeting the phase-one standard

§ 151.2040 Discharge of ballast water in extraordinary circumstances.

(a) The master, owner, operator, agent, or person-in-charge of a vessel that cannot practicably meet the requirements of § 151.2025(a)(3) of this subpart — either because its voyage does not take it into waters 200 nautical miles or greater from any shore for a sufficient length of time and the vessel retains ballast water on board, or because the master of the vessel has identified the safety or stability concerns contained in § 151.2045 of this subpart - will be allowed to discharge ballast water in areas other than the Great Lakes and the Hudson River. This exception would be allowed until the vessel would be required to have a Coast Guard approved BWMS per the implementation schedule found in Table

151.2035(b) of this subpart. The master, owner, operator, agent, or person-in-charge of the vessel must discharge only that amount of ballast water operationally necessary to ensure the safety of the vessel for cargo operations. Ballast water records must be made available to the local Captain of the Port upon request.

(b) A vessel that cannot practicably meet the requirements of § 151.2025(a)(1) of this subpart because its approved BWMS is inoperable must employ one of the other ballast water management practices listed in § 151.2025(a) of this subpart. If the master of the vessel determines that the vessel cannot employ other ballast water management practices due to voyage or safety concerns, the vessel will be allowed to discharge ballast water in areas other than the Great Lakes and the Hudson River. The vessel must discharge only that amount of ballast water operationally necessary to ensure the safety and stability of the vessel for cargo operations. Ballast water records must be made available to the local Captain of the Port upon request. Per the implementation schedule found in Table 151.2035(b) of this subpart, a vessel will be prohibited from discharging non-managed ballast water until its approved BWMS is repaired in accordance to the manufacturer’s specifications.

§ 151.2045 Safety exception.

(a) The master, owner, operator, agent, or person-in-charge of a vessel is responsible for the safety of the vessel, its crew, and its passengers.

(b) The master, owner, operator, agent, or person-in-charge of a vessel is not required to conduct a ballast water management practice, including exchange, if the master determines that the practice would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, vessel design limitations, equipment failure, or any other extraordinary conditions. If the master uses this safety exception and the vessel—

(1) Is on a voyage to the Great Lakes or Hudson River, the vessel must comply with the requirements of § 151.1514 of subpart C of this part.

(2) Is on a voyage to any port other than the Great Lakes or Hudson River, the vessel will not be required to perform a ballast water management practice, including exchange, that the master has found to threaten the safety of the vessel, its crew, or its passengers because of adverse weather, vessel design limitations, equipment failure, or any other extraordinary conditions.

(c) Nothing in this subpart relieves the master, owner, operator, agent, or person-in-charge of a vessel of any responsibility, including ensuring the safety and stability of the vessel and the safety of the crew and passengers.

§ 151.2050 Additional requirements—nonindigenous species reduction practices.

The master, owner, operator, agent, or person-in-charge of any vessel equipped with ballast water tanks that operates in the waters of the U.S. must:

(a) Avoid the discharge or uptake of ballast water in areas within, or that may directly affect marine sanctuaries, marine preserves, marine parks, or coral reefs.

(b) Minimize or avoid uptake of ballast water in the following areas and situations:

(1) Areas known to have infestations or populations of harmful organisms and pathogens (e.g., toxic algal blooms);

(2) Areas near sewage outfalls;

(3) Areas near dredging operations;

(4) Areas where tidal flushing is known to be poor or times when a tidal stream is known to be turbid;

(5) In darkness when bottom-dwelling organisms may rise up in the water column;

(6) Where propellers may stir up the sediment; and

(7) Areas with pods of whales, convergence zones, and boundaries of major currents.

(c) Clean the ballast tanks regularly to remove sediments. Tanks should be cleaned 200 nautical miles from any shore or under controlled arrangements in port or at dry dock. Sediments should be disposed of in accordance with local, State, and Federal regulations.

(d) Discharge only the minimal amount of ballast water essential for vessel operations while in the waters of the United States.

(e) Rinse anchors and anchor chains when the anchor is retrieved to remove organisms and sediments at their place of origin.

(f) Remove fouling organisms from hull, piping, and tanks on a regular basis and dispose of any removed substances in accordance with local, State and Federal regulations.

(g) Maintain a ballast water management plan that has been developed specifically for the vessel that will allow those responsible for the plan's implementation to understand and follow the vessel's ballast water management

strategy and comply with the requirements of this subpart. The plan must include the following:

(1) Detailed safety procedures;

(2) Actions for implementing the mandatory BWM requirements and practices;

(3) Detailed fouling maintenance and sediment removal procedures;

(4) Procedures for coordinating the shipboard BWM strategy with Coast Guard authorities;

(5) Identification of the designated officer[s] in charge of ensuring that the plan is properly implemented;

(6) Detailed reporting requirements and procedures for ports and places in the U.S. where the vessel may visit; and

(7) A translation of the plan into English, French or Spanish if the Ship's working language is another language.

(h) Train the master, operator, agent, person-in-charge, and crew on the application of ballast water and sediment management and treatment procedures.

§ 151.2055 Deviation from planned voyage.

As long as ballast water exchange (BWE) is an allowable ballast water management option under §§ 151.2025 and 151.2035 of this subpart, a vessel will not be required

to deviate from its voyage or delay the voyage in order to conduct BWE.

§ 151.2060 Reporting requirements.

(a) Ballast water reporting requirements exist for each vessel subject to this subpart bound for ports or places of the United States regardless of whether a vessel operated outside of the exclusive economic zone (which includes the equivalent zone of Canada), unless exempted in § 151.2015 of this subpart.

(b) The owner, operator, agent, or person-in-charge of a vessel subject to this subpart and to whom this section applies must provide the information required by § 151.2070 of this subpart in electronic or written form (OMB form Control No. 1625-0069) to the Commandant, U.S. Coast Guard or the appropriate Captain of the Port (COTP) as follows:

(1) For any vessel bound for the Great Lakes from outside the EEZ.

(i) Fax the required information at least 24 hours before the vessel arrives in Montreal, Quebec to the USCG COTP Buffalo, Massena Detachment (315-769-5032); or

(ii) As an alternative for non-U.S. and non-Canadian flag vessels, complete the ballast water information section of the form required by the St. Lawrence Seaway,

"Pre-entry Information from Foreign Flagged Vessels Form", and submit it in accordance with the applicable Seaway Notice in lieu of this requirement.

(2) For any vessel bound for the Hudson River north of the George Washington Bridge entering from outside the EEZ. Fax the information to the COTP New York (718-354-4249) at least 24 hours before the vessel enters New York, New York.

(3) For any vessel that is equipped with ballast water tanks and bound for ports or places in the United States and not addressed in paragraphs (b)(1) and (b)(2) of this section. If a vessel's voyage is less than 24 hours, report before departing the port or place of departure. If a voyage exceeds 24 hours, report at least 24 hours before arrival at the port or place of destination. All required information is to be sent to the National Ballast Information Clearinghouse (NBIC) using only one of the following means:

(i) Via the Internet at:

http://invasions.si.edu/nbic/index.html;

(ii) E-mail to NBIC@BallastReport.org;

(iii) Fax to 301-261-4319; or

(iv) Mail to U.S. Coast Guard, c/o Smithsonian Environmental Research Center, P.O. Box 28, Edgewater, MD 21037-0028.

(c) If the information submitted in accordance with this section changes, submit an amended form before the vessel departs the waters of the United States.

§ 151.2065 Equivalent Reporting Methods for vessels other than those entering the Great Lakes or Hudson River after operating outside the EEZ or Canadian equivalent.

For ships required to report under § 151.2060(b)(3) of this subpart, the Chief, Environmental Standards Division (CG-5224), acting for the Assistant Commandant for Safety, Security, and Stewardship (CG-5), may, upon receipt of a written request, consider and approve alternative methods of reporting if:

(a) Such methods are at least as effective as that required by § 151.2060 of this subpart; and

(b) Compliance with § 151.2060 of this subpart is economically or physically impractical. The Chief, Environmental Standards Division (CG-5224), will take approval or disapproval action on the request submitted in accordance with this section within 30 days of receipt of the request.

§ 151.2070 Recordkeeping requirements.

(a) The master, owner, operator, agent, or person-in-charge of a vessel bound for a port or place in the United States, unless specifically exempted by § 151.2015 of this subpart, must ensure that maintain written records that include the following information:

(1) Vessel information. This includes the name, International Maritime Organization (IMO) Number (official number if IMO number not issued), vessel type, owner or operator, gross tonnage, call sign, and port of registry (flag).

(2) Voyage information. This includes the date and port of arrival, vessel agent, last port and country of call, and next port and country of call.

(3) Total ballast water information. This includes the total ballast water capacity, total volume of ballast water on board, total number of ballast water tanks, and total number of ballast water tanks in ballast. Use units of measurements such as metric tons (MT), cubic meters (m^3), long tons (LT), and short tons (ST).

(4) Ballast water management. This includes the total number of ballast tanks/holds that are to be discharged into the waters of the United States or to a reception facility. If an alternative ballast water management method is used, note the number of tanks that

are managed using an alternative method, as well as the type of method used. Indicate whether the vessel has a ballast water management plan and IMO guidelines on board, and whether the ballast water management plan is used.

(5) Information on ballast water tanks that are to be discharged into the waters of the United States or to a reception facility. Include the following:

(i) The origin of ballast water. This includes date(s), location(s), volume(s) and temperature(s). If a tank has been exchanged, list the loading port of the ballast water that was discharged during the exchange.

(ii) The date(s), location(s), volume(s), method, thoroughness (percentage exchanged if exchange conducted), and sea height at time of exchange if exchange conducted of any ballast water exchanged or otherwise managed.

(iii) The expected date, location, volume, and salinity of any ballast water to be discharged into the waters of the United States or a reception facility.

(6) Discharge of sediment. If sediment is to be discharged within the jurisdiction of the United States, include the location of the facility where the disposal will take place.

(7) Certification of accurate information. Include the master, owner, operator, agent, person-in-charge, or

responsible officer's printed name, title, and signature attesting to the accuracy of the information provided and certifying compliance with the requirements of this subpart.

(8) Change to previously submitted information. Indicate whether the information is a change to information previously submitted for this voyage.

(9) The master, owner, operator, agent, or person-in-charge of a vessel subject to this section must retain a signed copy of this information on board the vessel for 2 years.

(10) The information required of this subpart may be used to satisfy the ballast water recordkeeping requirements for vessels subject to 33 CFR Part 151 subpart C and § 151.2025(c).

(11) A sample form and the instructions for completing the form are in the appendix to this subpart. Completing the "Ballast Water Reporting Form" contained in the IMO Guidelines or completing the ballast water information section of the form required by the St. Lawrence Seaway "Pre-entry Information Flagged Vessels Form" meets the requirements of this section.

§ 151.2075 Enforcement and compliance.

(a) The Captain of the Port (COTP) shall be provided access in order to take samples of ballast water and sediment, examine documents, and make other appropriate inquiries to assess the compliance of any vessel subject to this subpart.

(b) The master, owner, operator, agent, or person in charge of a vessel subject to this section must provide to the COTP the records required by § 151.2070 of this subpart upon request.

(c) The NBIC will compile the data obtained from submitted reports. This data will be used, in conjunction with existing databases on the number of vessel arrivals, to assess vessel reporting rates.

(d) Vessels with installed BWMS are subject to Coast Guard inspection in accordance with 46 CFR 2.75-1.

(e) In this subpart, wherever multiple entities are responsible for compliance with any requirement of the rule, each entity is jointly liable for a violation of such requirement.

§ 151.2080 Penalties.

(a) A person who violates this subpart is liable for a civil penalty not to exceed $ 27,500. Each day of a continuing violation constitutes a separate violation. A vessel operated in violation of the regulations is liable

in rem for any civil penalty assessed under this subpart for that violation.

(b) A person who knowingly violates the regulations of this subpart is guilty of a class C felony.

Appendix to Subpart D of Part 151—Ballast Water Reporting Form and Instructions for Ballast Water Reporting Form

INSTRUCTIONS FOR BALLAST WATER REPORTING FORM

(Please write in English and PRINT legibly.)

Is this an Amended Ballast Reporting Form?: **Check Yes or No. Amendments should be submitted if there are any differences between actual ballast discharges and discharge information reported in a prior form. Please mark "Yes" if this form amends a previously submitted ballast reporting form.**

SECTION 1. VESSEL INFORMATION

Vessel Name: Print the name of the vessel clearly.

IMO Number: Fill in identification number of the vessel used by the International Maritime Organization.

Owner: Write in the name of the registered owner(s) of the vessel. If under charter, enter Operator name.

Type: List specific vessel type. Use the following abbreviations: bulk (**bc**), roro (**rr**), container (**cs**), tanker (**ts**), passenger (**pa**), oil/bulk ore (**ob**), general cargo (**gc**), reefer (**rf**). Write out any additional vessel types.

GT: What is the Gross Tonnage of the vessel?

Call Sign: Write in the official call sign.

Flag: Fill in the full name of the country under whose authority the ship is operating. No abbreviations, please.

SECTION 2. VOYAGE INFORMATION

Arrival Port: Write in the name of your first port of call after entering the U.S. EEZ or St. Lawrence Seaway. No abbreviations, please.

Arrival Date: Fill in the arrival date to the above port. Please use European date format (DDMMYY).

Agent: List agent used for current port.

Last Port: Last Port: Fill in the last port at which the vessel called immediately before entering the U.S. EEZ. No abbreviations, please.

Country of Last Port: Fill in the last country at which the vessel called immediately before entering the U.S. EEZ. No abbreviations, please.

Next Port: Fill in the port at which the vessel will call immediately after departing the current port ("Current Port" = "Arrival Port" above). No abbreviations, please.

Country of Next Port: Fill in the country of "Next Port" at which the vessel will call immediately after current port. No abbreviations, please.

SECTION 3. BALLAST WATER

Total Ballast Water on Board:

Volume: What was the total volume of ballast water on board upon arrival into the waters of U.S. EEZ? Do not count potable water.

Units: Please include volume units (m^3, MT, LT, ST).

Number of Tanks in Ballast: Count the number of ballast tanks and holds with ballast as the vessel enters waters inside the U.S. EEZ.

Total Ballast Water Capacity:

Volume: What is the maximum volume of ballast water used when no cargo is on board?

Units: Please include volume units (m^3, MT, LT, ST).

Total Number of Tanks on Ship: Count all tanks and holds that can carry ballast water (do not include tanks that carry potable water).

SECTION 4. BALLAST WATER MANAGEMENT

Total No. of tanks to be discharged: Count only tanks and holds with ballast to be discharged into waters inside the United States EEZ or into an approved reception facility. Count all tanks and holds separately (e.g., port and starboard tanks should be counted separately).

Of tanks to be discharged, how many Underwent Exchange: Count all tanks that are to be discharged into waters of the United States or into an approved reception facility.

Of tanks to be discharged, how many Underwent Alternative Management: Count all tanks that are to be discharged into waters of the United States or an approved reception facility.

Please specify alternative method(s) used, if any: Specifically, describe methods used for ballast management.

If no ballast treatment conducted, state reason why not: This applies to all tanks and holds being discharged into waters of the United States or into an approved reception facility.

Ballast Management Plan on board?: Is there a written document on board, specific to your vessel, describing the procedure for ballast management? This should include

safety and exchange procedures (usually provided by vessel's owner or operator). Check Yes or No.

Management Plan implemented?: Do you follow the above management plan? Check Yes or No.

IMO Ballast Water Guidelines on board?: Is there a copy of the International Maritime Organization (IMO) Ballast Water Guidelines on board this vessel (i.e. "Guidelines for the Control and Management of Ship's Ballast Water to Minimize the Transfer Aquatic Organisms and Pathogens", [Res. A.868(20)])? Check Yes or No.

SECTION 5. BALLAST WATER HISTORY

(Record all tanks to be deballasted in port state of arrival: If none, go to #6)

Tanks/Holds: Please list all tanks and holds that you have discharged or plan to discharge into waters of the United States or into an approved reception facility (write out, or use codes listed below table). Follow each tank across the page listing all source(s), exchange events, and/or discharge events separately. List each tank on a separate line. Port and starboard tanks with identical ballast water histories may be included on same line. Please use an additional page if necessary, being careful to include ship name, date, and IMO number at the top of each. For tanks with multiple sources: list 3 largest sources from last 30 days on separate lines. If more than 3 sources, include a 4th line for the respective tank(s) that indicated "Multiple" in port column and list the remaining tank volume not included in the 3 largest sources (i.e., total tank volume minus volume of the 3 largest sources). See example #1 on sample ballast reporting form.

-BW SOURCES-

Date: Record date of ballast water uptake. Use European format (DDMMYY).

Port or latitude/longitude: Record location of ballast water uptake, no abbreviations for ports.

Volume: Record total volume of ballast water uptake, with volume units.

Temp: Record water temperature at time of ballast water uptake, in degrees Celsius (include units).

-BW MANAGEMENT PRACTICES-

Date: Date of ballast water management practice. If exchanges occurred over multiple days, list the day when exchanges were completed. Use European format (DDMMYY).

Endpoint or latitude/longitude: Report location of ballast water management practice. If an exchange occurred over an extended distance, list the end point latitude and longitude.

Volume: Report total volume of ballast water moved (i.e., gravitated and pumped into tanks, discharged to reception facility) during management practice, with units.

% Exchange: (Note: for effective flow through exchange, this value should be at least 300%).

$$\% \text{ Exchange} = \frac{\text{Total Volume Added by Refill or Flow Through}}{\text{Capacity of Ballast Tank or Hold}} \times (100\%)$$

Method: Indicate management method using code (ER = empty/refill, FT = flow through, ALT = alternative method).

Sea Ht. (m): Estimate the sea height in meters at the time of the ballast water exchange if this method was used. (Note: this is the combined height of the wind-seas and swell, and does not refer to water depth).

-BW DISCHARGES-

Date: Date of ballast water discharge. Use European format (DDMMYY).

Port or latitude/longitude: Report location of ballast water discharge, no abbreviations for ports.

Volume: Report volume of ballast water discharged, with units.

Salinity: Document salinity of ballast water at the time of discharge, with units (i.e., specific gravity (sg) or parts per thousand (ppt)).

SECTION 6. TITLE AND SIGNATURE

Responsible officer's name and title (printed) and signature: Print name and title, include signature.

BALLAST WATER REPORTING FORM

IS THIS AN AMENDED BALLAST REPORTING FORM? YE☐ N☐

1. VESSEL INFORMATION **2. VOYAGE INFORMATION** **3. BALLAST WATER USAGE AND CAPACITY**

Vessel Name:	Arrival Port:		***Specify Units Below (m^3, MT, LT, ST)***		
IMO Number:	Arrival Date:		Total Ballast Water on Board:		
Owner:	Agent:		Volume	Units	No. of Tanks in Ballast
Type:	Last Port:	Country of Last Port:			
GT:			Total Ballast Water Capacity:		
Call Sign:	Next Port:	Country of Next Port:	Volume	Units	Total No. of Tanks on Ship
Flag:					

4. BALLAST WATER MANAGEMENT Total No. Ballast Water Tanks to be discharged: ☐

Of tanks to be discharged, how many: Underwent Exchange: ☐ Underwent Alternative Management: ☐

Please specify alternative method(s) used, if any: _____

If no ballast treatment conducted, state reason why not: _____

Ballast management plan on board? YES ☐ NO ☐ Management plan implemented? YES☐ NO ☐

IMO ballast water guidelines on board [res. A.868(20)]? YES☐ NO ☐

5. BALLAST WATER HISTORY: Record all tanks to be deballasted in port state of arrival; IF NONE, GO TO #6 ***(Use additional sheets as needed)***

Tanks/ Holds List multiple sources/tanks separately	BW SOURCES				BW MANAGEMENT PRACTICES						BW DISCHARGES			
	DATE DD/MM/YY	**PORT or** LAT. LONG.	VOLUME (units)	TEMP (units)	**DATE** DD/MM/YY	ENDPOINT LAT. LONG.	VOLUME (units)	% Exch	METHOD (ER/FT/ ALT)	SEA HT. (m)	DATE DD/MM/YY	PORT or LAT. LONG.	VOLUME (units)	SALINITY (units)

Ballast Water Tank Codes: Forepeak = FP, Aftpeak = AP, Double Bottom = DB, Wing = WT, Topside = TS, Cargo Hold = CH, Other = O

6. RESPONSIBLE OFFICER'S NAME AND TITLE, PRINTED AND SIGNATURE: _____

Where to send this form:

Vessels equipped with ballast water tanks bound for all ports or places within the waters of the United States after operating outside the EEZ (which includes the equivalent zone of Canada).	
Bound for	You must submit your report as detailed below.
The Great Lakes	Fax the information at least 24 hours before the vessel arrives in Montreal, Quebec, to the USCG COTP Buffalo, Massena Detachment (315-769-5032). In lieu of faxing, vessels that are not U.S. or Canadian flagged may complete the ballast water information section of the St. Lawrence Seaway "Pre-entry Information from Foreign Flagged Vessel Form".
Hudson River north of the George Washington Bridge	Fax the information to the COTP New York (718-354-4249) at least 24 hours before the vessel arrives at New York, New York. * Note: Vessels entering COTP New York Zone which are not bound up the Hudson River north of George Washington Bridge should submit the form in accordance with the instructions in the following block.
All other U.S. Ports	Report before departing the port or place of departure if voyage is less than 24 hours, or at least 24 hours before arrival at the port or place of destination if the voyage exceeds 24 hours; and submit the required information to the National Ballast Information Clearinghouse (NBIC) by one of the following means: Via the Internet at: http://invasions.si.edu/nbic/index.html; E-mail to: NBIC@BallastReport.org; Fax to: 301-261-4319; or Mail to: U.S. Coast Guard, c/o Smithsonian Environmental Research Center, P.O. Box 28, Edgewater, MD 21037-0028.
Vessels that have not operated outside the EEZ, which are equipped with ballast water tanks and are bound for all ports or places within the waters of the United States.	
Bound for	You must submit your report as detailed below:
All U.S. ports including the Great Lakes and Hudson River North of George Washington Bridge	Report before departing the port or place of departure if voyage is less than 24 hours, or at least 24 hours before arrival at the port or place of destination if the voyage exceeds 24 hours; and submit the required information to the National Ballast Information Clearinghouse (NBIC) by one of the following means: Via the Internet at: http://invasions.si.edu/nbic/index.html; E-mail to: NBIC@BallastReport.org; Fax to: 301-261-4319; or Mail to: U.S. Coast Guard, c/o SERC. P.O. Box 28, Edgewater, MD 21037-0028.

If any information changes, send an amended form before the vessel departs the waters of the United States.
An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The Coast Guard estimates that the average burden for this report is 35 minutes. You may submit any comments concerning the accuracy of this burden estimate or any suggestions for reducing the burden to: Commandant (CG-5224), U.S. Coast Guard, 2100 Second St. SW, Washington, DC 20593, or Office of Management and Budget, Paperwork Reduction Project (2115-0598), Washington, DC 20503

CHAPTER I—COAST GUARD

Subchapter Q—Equipment, Construction, and Materials: Specifications and Approval

PART 162—ENGINEERING EQUIPMENT

9. Revise the authority citation for part 162 to read as follows:

Authority: 16 U.S.C. 4711; 33 U.S.C. 1321(j), 1903; 46 U.S.C. 3306, 3703, 4104, 4302; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

10. Add subpart 162.060 to subchapter Q of Chapter I of title 46 of the CFR to read as follows:

Subpart 162.060—Ballast Water Management Systems

Sec.

Authority: 16 U.S.C. 4711; Department of Homeland Security Delegation No. 0170.1.

Subpart 162.060—Ballast Water Management Systems

§ 162.060-1 Purpose and scope.

This subpart contains procedures and requirements for approval of complete ballast water management systems (BWMS) to be installed onboard vessels for the purpose of complying with the ballast water discharge standard of 33 CFR part 151, subparts C and D.

§ 162.060-3 Definitions.

As used in this subpart--

Active substance means a chemical or an organism, including a virus or a fungus, that has a general or specific action on or against nonindigenous species.

Ballast water management system (BWMS) means any system which processes ballast water to kill or remove organisms. The BWMS includes all ballast water treatment

equipment and all associated control and monitoring equipment.

Ballast water system means the tanks, piping, valves, pumps, sea chests, and any other associated equipment the vessel uses for the purposes of ballasting.

Ballast water treatment equipment means equipment that mechanically, physically, chemically, or biologically processes ballast water, either singularly or in combination, to remove, render harmless, or avoid the uptake or discharge of living organisms within ballast water and sediments.

Control and monitoring equipment means installed equipment required to operate, control, and assess the effective operation of the ballast water treatment equipment.

Foreign Administration means the Government of the State under whose authority the ship is operating.

Hazardous location means areas where fire or explosion hazards may exist due to the presence of flammable gases/vapors, flammable liquids, combustible dust, or ignitable fibers. Refer to NEC and IEC 79-0.

Hazardous materials means hazardous materials as defined in 49 CFR 171.8; hazardous substances designated under 40 CFR part 116.4; reportable quantities as defined

under 40 CFR 117.1; materials that meet the criteria for hazard classes and divisions in 49 CFR part 173; materials under 46 CFR 153.40 determined by the Coast Guard to be hazardous when transported in bulk; flammable liquids defined in 46 CFR 30.10-22; combustible liquids as defined in 46 CFR 30.10-15; materials listed in Table 46 CFR 151.05, Table 1 of 46 CFR 153, or Table 4 of 46 CFR part 154; or any liquid, liquefied gas, or compressed gas listed in 49 CFR 172.101.

Independent Laboratory (IL) means an organization that meets the requirements in 46 CFR 159.010-3 and is accepted by the Coast Guard for performing approval tests and evaluations of BWMS required by this subpart. In addition to commercial testing laboratories, the Commandant may also accept classification societies and agencies of governments (including state and Federal agencies of the United States) that are involved in the evaluation and testing of BWMS, if they meet the requirements of § 159.010-3 of this subchapter.

In-line treatment means a treatment system or technology used to treat ballast water during normal flow of ballast uptake or discharge.

In-tank treatment means a treatment system or technology used to treat ballast water during the time that it resides in the ballast tanks.

Pesticide means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest as defined under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)(7 U.S.C. §136 et.seq.) and 40 CFR 152.3.

Preparation means any commercial formulation containing one or more active substances, including any additives. This definition also includes any active substances generated onboard a vessel for the purpose of ballast water management and any relevant chemical formed in or by the BWMS that makes use of active substances to comply with the ballast water discharge standard codified in 33 CFR part 151 subpart C or D.

Quality Assurance Project Plan (QAPP) means a project-specific technical document reflecting the implementation of quality assurance and quality control activities, including specifics of the BWMS to be tested, the Independent Laboratory, and other conditions affecting the actual design and implementation of the required tests and evaluations.

Relevant chemicals mean transformation or reaction

products that are produced during the treatment process or in the receiving environment and may be of concern to the aquatic environment and human health when discharged.

Representativeness means a sample that can be expected to adequately reflect the properties of interest from where the sample was drawn.

Sampling port refers to the equipment installed in the ballast water piping prior to the point of overboard discharge through which representative samples of the ballast water being discharged are extracted. This is equivalent to the term "sampling facility" under the guidelines for the International Convention for the Control and Management of Ships' Ballast Water and Sediments, "Convention Guidelines for Ballast Water Sampling (G2)".

Test facilities means locations where ILs conduct land-based, component, active substance and relevant chemical testing and evaluations, as required by this subpart.

§ 162.060-5 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in

the Federal Register and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. Also, it is available for inspection at the Environmental Standards Division (CG-5224), U.S. Coast Guard, 2100 Second Street SW, Washington, DC 20593, and is available from the sources indicated in this section.

(b) International Electrotechnical Commission (IEC), 3 rue Varembe, Geneva, Switzerland.

(1) IEC 79-0, Electrical Apparatus for Explosive Gas Atmospheres, Part 0, General Requirements, 1983 (Including Amendment 2, 1991), §162.060-38.

(2) IEC 529, Classification of Degrees of Protection by Enclosures, § 162.060-30.

(c) International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), 1, ch. de la Voie-Creuse, Case postale 56 CH-1211 Geneva 20, Switzerland. ISO/IEC 17025, General Requirements for the Competence of Calibration and Testing Laboratories, § 162.060-36.

(d) National Fire Protection Association (NFPA), Batterymarch Park, Quincy, MA 02269. NEC, see NFPA 70, § 162.060-38.

§ 162.060-10 Approval procedures.

(a) Before any testing is initiated on the ballast water management system (BWMS), the manufacturer must submit a Letter of Intent providing as much as possible of the below information to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593 and the Commanding Officer, U.S. Coast Guard, Office of Operating and Environmental Standards (CG-522), RM 1210, 2100 Second Street SW, Washington, DC 20593:

(1) Manufacturer's name.

(2) Name and location of Independent Laboratory (IL).

(3) Name and type of BWMS.

(4) Expected date of submission of full application package to the Coast Guard.

(5) Name and type of vessel for shipboard testing.

(b) The manufacturer must ensure testing of the BWMS is conducted by an Independent Laboratory in accordance with §§ 162.060-20 through 162.060-40 of this subpart.

(c) The manufacturer must submit application in accordance with § 162.060-14 of this subpart.

(d) Upon receipt of an application completed in compliance with § 162.060-14 of this subpart, the Coast Guard Marine Safety Center will evaluate the application and either approve, disapprove, or return it to the manufacturer for further revision.

(e) The Coast Guard will independently conduct environmental analyses of each system in accordance with the National Environmental Policy Act, the Endangered Species Act, and/or other environmental statues, in addition to tests and evaluations conducted by an IL required by this subpart. Applicants are advised that applications including novel processes or active substances may encounter significantly longer reviews during this evaluation.

(f) After evaluation of the Test Report and all design, construction, and environmental considerations, the Commanding Officer, U.S. Coast Guard Marine Safety Center, will advise the applicant in accordance with 46 CFR §§ 159.005-13 or 159.005-15 whether the BWMS is approved.

(g) A BWMS is eligible for approval if:

(1) It meets the design and construction requirements in § 162.060-20 of this subpart;

(2) It is tested under land-based and shipboard conditions in accordance with § 162.060-26 and § 162.060-28

of this subpart, respectively, and thereby demonstrated to consistently meet the ballast water discharge standard in 33 CFR part 151, subparts C and D;

(3) All applicable components of the BWMS meet the component testing requirements of § 162.060-30 of this subpart;

(4) Of the BWMS that use an active substance or preparation, the BWMS meets the requirement of § 162.060-32 of this subpart; and

(5) Of the BWMS that use or generate an active substance, preparation, or relevant chemical, the ballast water discharge, preparation, active substance, or relevant chemical are not found to be persistent, bioaccumulative, or toxic.

(h) If tests or evaluations required by this section are not practicable or applicable, a manufacturer may submit a written request to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593 for approval of alternatives. The request must include the manufacturer's justification for any proposed changes and contain full descriptions of any proposed alternative tests. The Coast Guard’s Marine Safety Center will return a copy of the Test Report with a cover letter advising the

manufacturer whether the BWMS is approved. Any limitations imposed by the BWMS on testing procedures and all approved deviations from any test or evaluation required by this subpart must be duly noted in the Experimental Design section of the Test Plan.

(i) The Commanding Officer, USCG Marine Safety Center will send a copy of the Test Report to the applicant and advise the applicant whether the BWMS is approved. If the BWMS is approved, an approval certificate is sent to the applicant. The approval certificate lists conditions of approval applicable to the item. The approval certificate will be issued in accordance with 46 CFR 2.75-5.

§ 162.060-12 Equivalency determinations for ballast water management systems (BWMS).

(a) A manufacturer whose BWMS has been approved by a Foreign Administration may request in writing for the Coast Guard to make an equivalency determination if it can be demonstrated that the BWMS successfully met or exceeded the requirements of this subpart.

(b) A manufacturer whose BWMS that has successfully been used in a prototype experimental treatment system program that included tests onboard a vessel under normal shipping operations may apply for an equivalency for the shipboard or component testing requirements outlined in §§

162.060-28 and 162.060-30 of this subpart respectively, if it can be demonstrated that the BWMS successfully met or exceeded comparable conditions during the shipboard testing period.

(c) If a manufacturer has already conducted a substantial amount of land-based and/or shipboard testing independent of the requirements of this subpart, the Coast Guard may make an equivalency determination.

(d) The request for an equivalency must include the following:

(1) Name, point of contact, address, and phone number of the authority overseeing the program;

(2) Entry and exit dates to that program;

(3) Final test results and findings; and

(4) A description of any modifications made to the system between the prototype and final development of the system.

(e) All requests for equivalencies under this section should be submitted in writing to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593.

§ 162.060-14 Information requirements for the ballast water management system (BWMS) application.

(a) A complete BWMS application must contain the following information:

(1) The name and location of the Independent Laboratory (IL) conducting approval tests and evaluations;

(2) Two sets of plans describing the BWMS, as specified in 46 CFR § 159.005-12;

(3) An Operation, Maintenance and Safety Manual for the BWMS that meets the requirements in § 162.060-38;

(4) A bill of materials showing all components and specifications of the BWMS, as required by 46 CFR § 56.60;

(5) A list of any system or component of the BWMS that may require certification under 46 CFR part 64 as a marine portable tank;

(6) A list of any pressure vessels used as a part of the BWMS along with a description of either how each pressure vessel meets the requirements of 46 CFR part 54 or why it should be considered exempt from these requirements. manufacturers must also submit detailed plans in accordance with 46 CFR § 50.20 if they intend to fabricate pressure vessels, heat exchangers, evaporators and similar appurtenances covered by the requirements in 46 CFR Part 54;

(7) Documentation of all necessary approval, registrations, and other documents or certification

required for any active substances, preparations, or relevant chemicals used by the BWMS. The documentation must include the following:

(i) A list of any active substances, preparations, or relevant chemicals that are used, produced, generated as a byproduct, and/or discharged in association with the operation of the BWMS; and

(ii) A list of all limitations or restrictions that must be complied with during the approval testing and evaluations;

(8) A detailed description of the manufacturer's quality control procedures for:

(i) In-process and final inspections;

(ii) Tests followed in manufacturing the item; and

(iii) Construction and sales recordkeeping maintenance systems; and

(9) The completed Test Report prepared and submitted by the IL.

(b) The completed application must be sent to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593.

(c) If examination of the application reveals that it is incomplete, it will be returned to the applicant with an explanation.

§ 162.060-16 Changes to an approved ballast water management system (BWMS).

(a) The manufacturer of a BWMS that is approved by the Coast Guard must notify the Commanding Officer, USCG Marine Safety Center, in writing of any change in design or intended operational conditions of an approved BWMS.

(b) The notification in (a) must include:

(1) A description of the change, and its advantages;

(2) A determination by the original IL, or an alternate IL deemed acceptable by the Coast Guard, as to whether or not the change affects how the BWMS operates;

(3) A determination of whether or not the modified BWMS remains in all material respects, the same as the original; and

(4) An indication of whether or not the original BWMS will continue to be made or discontinued altogether.

(c) After receipt of the notice and information, the Coast Guard will notify the manufacturer and the IL in writing of any tests or evaluations that must be conducted, and then determine if recertification and/or modification is required.

§ 162.060-18 Suspension, withdrawal, or termination of approval.

The Coast Guard may suspend an approval issued for a BWMS in accordance with 46 CFR 2.75–40, withdraw an approval in accordance with 46 CFR 2.75–50(a), or terminate an approval in accordance with 46 CFR 2.75-50(b) if the BWMS as manufactured:

(a) Is not found to be in compliance with the conditions of approval;

(b) Is unsuitable for the purpose intended by the manufacturer;

(c) Does not meet the requirements of applicable laws, rules, and regulations when installed and operated as intended by the manufacturer;

(d) Is no longer being manufactured or supported; or

(e) When the approval expires.

§162.060-20 Design and construction requirements.

(a) Unless otherwise authorized by the Commandant, each BWMS must be designed and constructed in a manner that:

(1) Ensures simple and effective means for its operation;

(2) Allows operation to be initiated, controlled, and monitored by a single individual, and with minimal

interaction or attention once normal operation is initiated;

(3) Is robust and suitable for working in the shipboard environment and adequate for its intended service;

(4) Meets all applicable requirements in 46 CFR Subchapter F, Marine Engineering, and Subchapter J, Electrical Engineering; and

(5) Operates when the vessel is upright, inclined under static conditions at any angle of list up to and including 15°, and when the vessel is inclined under dynamic, rolling conditions at any angle of list up to and including 22.5° and, simultaneously, at any angle of trim (pitching) up to and including 7.5° by bow or stern. Deviations from these angles of inclination may be permitted by the Coast Guard's Marine Safety Center, in accordance with § 162.060-10(h), considering the type, size, and service of intended vessels and considering how the BWMS is to be operated.

(b) Each BWMS must have control and monitoring equipment that:

(1) Automatically monitors and adjusts necessary treatment dosages, intensities, or other aspects required for proper operation;

(2) Incorporates a continuous self-monitoring function during the period in which the BWMS is in operation;

(3) Records proper functioning and failures of the BWMS;

(4) Records all events in which an alarm is activated for the purposes of cleaning, calibration, or repair;

(5) Records any bypass of the BWMS;

(6) Is able to store data for at least 24 months and to display or print a record for official inspections as required; and

(7) In the event the control and monitoring equipment is replaced, actions must be taken to ensure the data recorded prior to replacement remains available onboard for a minimum of 24 months.

(c) Each BWMS must be designed and constructed with the following operating and emergency controls:

(1) Visual means of indicating when the BWMS is operating, including a visual alarm activated whenever the BWMS is in operation for the purpose of cleaning, calibration, or repair;

(2) Audible and visual alarm signals must be provided in all stations from which ballast water operations are

controlled in case of any failure(s) compromising the proper operation of the BWMS;

(3) As applicable, have means to activate stop valves when failure of the BWMS occurs;

(4) Suitable manual by-passes or overrides to protect the safety of the ship and personnel in the event of an emergency;

(5) Means that compensate for a momentary loss of power during operation of the BWMS so that unintentional discharges do not occur;

(6) BWMS installed in unoccupied machinery spaces must be capable of operating automatically from the time it is placed on-line until it is secured; and

(7) Adequate alarms for the applicable chemicals used in the BWMS and spaces where they are introduced or stored.

(d) BWMS must comply with the relevant requirements of 46 CFR subpart 111.105 if it is intended to be fitted in hazardous locations. Any electrical equipment that is a component of the BWMS must be installed in a non-hazardous location unless certified as safe for use in a hazardous location. Any moving parts which are fitted in hazardous locations must be arranged in a manner that avoids the formation of static electricity.

(e) To ensure continued operational performance of the BWMS without interference, the following conditions must be incorporated into the design:

(1) Each part of the BWMS that is required to be serviced routinely per the manufacturer's instructions or is liable to wear or damage must be readily accessible in the installed position(s) recommended by the manufacturer;

(2) To avoid interference with the BWMS, every access of the BWMS beyond the essential requirements, as determined by the manufacturer, must require the breaking of a seal, and any bypass or avoidance of the BWMS for the purpose of maintenance must activate an alarm;

(3) Simple means must be provided aboard the ship to identify drift and repeatability fluctuations and re-zero measuring devices that are part of the control and monitoring equipment.

(f) Each BWMS must be designed so that it does not rely in whole or in part on dilution of ballast water as a means of achieving the ballast water discharge standard as required in 33 CFR part 151, subparts C or D.

(g) Adequate arrangements for storage, application, mitigation, monitoring, and safe handling must be made for all BWMS that incorporate the use of, produce, generate, or discharge a hazardous material, active substance, and/or

pesticide in accordance with Coast Guard regulations on handling/storage of hazardous materials (33 CFR 126) and any other applicable Federal, state, and local requirements.

(h) For any BWMS that incorporates the use of or generates active substances, preparations, or chemicals, the BWMS must be equipped with each of the following as applicable:

(1) A means of indicating the amount and concentration of any chemical in the BWMS that is necessary for its effective operation;

(2) A means of indicating when chemicals must be added for the proper continued operation of the BWMS;

(3) Sensors and alarms in all spaces that may be impacted by a malfunction of the BWMS;

(4) A means of monitoring all active substances and preparations in the treated discharge;

(5) A means to ensure that any maximum dosage or maximum allowable discharge concentrations of active substances and preparations are not exceeded at any time; and

(6) Each chemical that is specified or provided by the manufacturer for use in the operation of a BWMS and is

defined as a hazardous material in 49 CFR 171.8 must be certified by the procedures in 46 CFR Part 147.

§ 162.060-22 Marking requirements.

(a) Each BWMS manufactured for Coast Guard approval must have a nameplate which is securely fastened to the BWMS and plainly marked by the manufacturer with the information listed in paragraph (b) of this section.

(b) Each nameplate must include the following information:

(1) Coast Guard Approval Number assigned to the system in the certificate of approval;

(2) Name of the manufacturer;

(3) Name and model number of the item;

(4) The manufacturer's serial number for the item;

(5) The month and year of manufacture completion; and

(6) The maximum allowable working pressure for the BWMS.

(c) The information required by paragraph (b) of this section must appear on a nameplate attached to, or in lettering on, the BWMS. The nameplate or lettering must be capable of withstanding, without loss of readability, the combined effects of normal wear and tear and exposure to water, salt spray, direct sunlight, heat, cold, and any substance used in the normal operation and maintenance of

the BWMS. The nameplate must not be obscured by paint, corrosion, or other materials that would hinder readability.

§ 162.060-24 Test Plan requirements.

(a) Test Plans must include an examination of all the manufacturer's stated requirements and procedures for installation, calibration, maintenance, and operations that will be used by the BWMS during each test.

(b) Test Plans must also address potential environmental, health, and safety issues; unusual operating requirements such as labor or materials; and any issues related to the disposal of treated ballast water, by-products, or waste streams.

(c) Each Test Plan must be in the following format:

(1) Title page, including all project participants;

(2) Table of contents;

(3) Project description and treatment performance objectives;

(4) Project organization and personnel responsibilities;

(5) Description of the Independent Laboratory (IL);

(6) Treatment technology description;

(7) Test setup, including a diagram of the test configuration and all connections of the BWMS to be tested;

(8) Experimental design, including specific test procedures, installation and start-up plan, sample and data collection, and sample handling and preservation;

(9) Challenge water conditions and preparation, including IL's procedures for preparation, and a description of how the water quality and biological challenge conditions meet the applicable requirements of this subpart;

(10) Pre-and post-test evaluation methods;

(11) Quality Assurance Project Plan (QAPP);

(12) Data management, analysis, and reporting, including measures of precision, accuracy, comparability, and representativeness;

(13) Environmental, health, and safety plan; and

(14) Applicable references.

§ 162.060-26 Land-based testing requirements.

(a) Each BWMS must undergo land-based tests and evaluations that meet the requirements of this section, in addition to the shipboard tests required in § 162.060-28. The land-based testing will determine the biological efficacy of the BWMS under consideration for approval is sufficient to meet the applicable BWDS, evaluate the suitability of the BWMS for shipboard installation, and validate those aspects of the operating and maintenance

parameters presented by the manufacturer that are appropriate for assessment under the relatively short-term, but well-controlled circumstances of a land-based test.

(b) The test set-up must operate as described in the Test Plan requirements per § 161.060-24 during at least five consecutive valid replicate test cycles.

(c) Each valid test cycle must include the following:

(1) Uptake of test water by pumping;

(2) Treatment of a minimum of 200 m^3 of test water with the BWMS,

(3) Process of a minimum of 200 m^3 of untreated test water through the IL in a manner that is in all ways identical to (2) above, except that the BWMS is not used to treat the water;

(4) Retention of the treated and control water in separate tanks for a minimum of 24 hours; and

(5) Discharge of the test water by pumping.

(d) BWMS not tested for each of the 3 salinity ranges and water conditions listed in (e) may be subject to operational restrictions within a certificate of type approval.

(e) The BWMS must be tested in water conditions for which it will be approved. For any set of test cycles, a salinity range must be chosen. With respect to the

salinity of water bodies where the BWMS is intended to be used, the test water used in the test set-up must have dissolved and particulate content in the following combinations:

(1) BWMS intended for use in water bodies with salinities greater than or equal to 32 parts per thousand (ppt) must use test water that has the following:

(i) A salinity greater than 32 ppt;

(ii) Dissolved Organic Carbon (DOC) in the range of 5-12 mg/l;

(iii) Particulate Organic Carbon (POC) in the range of 5-12 mg/l; and

(iv) Total Suspended Solids (TSS) greater than 5 mg/l;

(2) BWMS intended for use in water bodies with salinities greater than 3 and less than 32 ppt must use test water that has the following:

(i) A salinity in the range of 3-32 ppt;

(ii) DOC in the range of 5-12 mg/l;

(iii) POC in the range of 5-12 mg/l; and

(iv) TSS greater than 5 mg/l;

(3) BWMS intended for use in water bodies with salinities less than or equal to 3 ppt must use test water that has the following:

(i) A salinity less than 3 ppt;

(ii) DOC in the range of 5-12 mg/l;

(iii) POC in the range of 5-12 mg/l; and

(iv) TSS greater than 10 mg/l;

(4) At least 2 sets of test cycles should be conducted with different salinity ranges and associated dissolved and particulate content as described. BWMS not tested for each of the 3 salinity ranges and water conditions listed in this section may be subject to operational restrictions within a certificate of approval.

(f) Test cycles under adjacent salinity ranges listed in (e) must be separated by at least 10 ppt.

(g) The BWMS must be tested at its rated capacity or as specified in (g)(1) for each test cycle and must function to the manufacturer's specifications during the test.

(1) In-line treatment equipment may be downsized for land-based testing, but only when the following criteria are met:

(i) In-line treatment equipment with a Treatment Rated Capacity (TRC) equal to or smaller than 200 m^3/h should not be downscaled:

(ii) In-line treatment equipment with a TRC larger than 200 m^3/h, but smaller than 1000 m^3/h may be downscaled

to a maximum of 1:5 scale, but must not be smaller than 200 m^3/h;

(iii) In-line treatment equipment with a TRC equal to or larger than 1000 m^3/h may be downscaled to a maximum of 1:100 scale, but must not be smaller than 200 m^3/h; and

(iv) The manufacturer of the BWMS must demonstrate by using mathematical modeling and/or by calculations that any downscaling will not affect the ultimate functioning and effectiveness onboard a vessel of the type and size for which the BWMS will be approved;

(2) Larger scaling may be applied and lower flow rates used other than those described in (g)(1) if the manufacturer can provide evidence from full-scale shipboard testing, in accordance with (g)(1)(iv), that larger scaling and lower flow rates will not adversely affect the ability to predict full-scale compliance with the BWDS. The procedures of § 162.060-10 must be followed before scaling of flow rates other than those provided in (g)(1), may be used.

(3) In-tank treatment equipment must be tested on a scale that allows verification of full-scale effectiveness. The suitability of the test set-up must be evaluated by the manufacturer and approved by the IL.

(h) The test set-up, TRC, and scaling of all tests must be clearly identified in the Experimental Design section of the Test Plan per § 162.060-24.

(i) The test set-up for approval tests must be representative of the characteristics and arrangements of the types of vessels in which the BWMS is intended to be installed. The test set-up must include at least the following:

(1) The complete BWMS to be tested;

(2) Piping and pumping arrangements; and

(3) At least one storage tank that simulates a ballast tank, constructed so that the water in the tank is completely shielded from light.

(j) Tanks used must--

(1) Have a minimum capacity of 200 m^3; and

(2) Be designed and constructed in a manner that minimizes the tank's effects on test organisms.

(k) The test setup piping must be rinsed with fresh water and the test tanks must be pressure-washed with tap water, before starting testing procedures and between test cycles.

(l) The test set-up must supply influent water to meet the conditions specified in paragraph (c)(2) of this section and include adequate facilities or arrangements to

meet the sampling requirements of paragraphs of this section while ensuring representative samples of treated and control water can be taken with as little adverse effects as possible on the test organisms.

(m) The influent water must include:

(1) Test organisms greater than or equal to 50 micrometers in size in a total density of at least 10^5 individuals per cubic meter. The test organisms must comprise at least 5 species from at least 3 different phyla/divisions;

(2) Test organisms greater than or equal to 10 micrometers and less than 50 micrometers in size in a total density of at least 10^4 individuals per liter. Test organisms must also consist of at least 5 species from at least 3 different phyla/divisions; and

(3) Heterotrophic bacteria to be present in a density of at least 10^4 living bacteria per milliliter.

(n) The test organisms used for influent water may be either naturally occurring in the test water, cultured species that may be added to the influent test water, or a mixture of both. The classification of test organisms in the test water must be documented according to the size classes mentioned in paragraph (m) of this section, regardless if natural organisms or cultured organisms were

used to meet the density and organism classification requirements.

(o) If cultured test organisms are used, the IL must ensure that all applicable Federal, state, local, and Tribal regulations are complied with during culturing and discharging of the cultured test organisms.

(p) Changes in the number of test organisms due to treatment or storage must be measured.

(q) The following bacteria do not need to be added to the influent water, but must be measured at the influent and at the time of discharge:

(1) *Escherichia coli*;

(2) Enterococci group;

(3) *Vibrio cholerae*; and

(4) Total heterotrophic bacteria.

(r) Testing and evaluation must verify that the BWMS performs within the parameters specified by the manufacturer, such as power consumption and flow rate during the test cycle.

(s) Samples must be collected during the test immediately before the test water enters the treatment equipment and upon discharge. Samples should be drawn using sample ports designed and installed as follows:

(1) The test set up should have sampling ports that are arranged in an order that will collect representative samples of the water under the following conditions:

(i) Sampling ports should be located as close as practicable to the BWMS prior to testing and prior to the discharge point after testing. Sampling should include any hold time; and

(ii) Sampling ports should be located elsewhere as necessary to ascertain the proper functioning of the BWMS.

(2) Sample ports must be designed and constructed to ensure the velocity profile at the opening of the sample port matches the velocity profile in the main stream of the pipe from which samples are taken. Sample ports must be designed and installed taking into consideration the findings and recommendations in the U.S. Coast Guard Research and Development Center (R&DC) Report "Analysis of Ballast Water Sampling Port Designs Using Computational Fluid Dynamics". The report is available for download from the R&DC web site at http://www.rdc.uscg.gov/.

(i) The opening of the sample port should be 1.5 – 2 times the isokinetic sample diameter, D_{iso}, which can be derived as follows:

$$D_{iso} := D_M \sqrt{\frac{Q_{iso}}{Q_M}}$$

where:

D_M is the diameter of the main pipe from which samples are to be extracted;

Q_M is the flow rate in the main pipe; and

Q_{iso} is the desired sample flow rate.

(ii) The sample port size must be based on the combination of maximum sample flow rate and minimum main-pipe flow rate that yields the largest isokinetic diameter.

(iii) Samples must be drawn from a straight pipe section on the centerline of the main flow, looking into the flow.

(iv) The sample taken should be drawn from the main pipe at a location where the flowing stream at the sample point is representative of the contents of the flow in the main pipe. The sample port should be located at a point where the flow in the main pipe is as close to fully mixed and fully developed as practicable.

(v) Ball valves must be used for shutting off the flow.

(vi) Smooth transition flow controls, like flexible venturi, must be used to control flow rates.

(viii) Piping and fittings from the sample port to the sample collection vessel must be minimized.

(t) Samples should be collected for:

(1) Organisms of greater than or equal to 50 micrometers in size from at least 20 liters of influent water and 1,000 liters of treated water, in triplicate, respectively. If samples are concentrated for enumeration, the samples should be concentrated using a sieve no greater than 50 micrometer mesh in the diagonal dimension;

(2) Organisms greater than or equal to 10 micrometers and less than 50 micrometers in size from at least 1 liter of influent water and at least 10 liters of treated water, in triplicate, respectively. If samples are concentrated for enumeration, the samples should be concentrated using a sieve no greater than 10 micrometers mesh in the diagonal dimension; and

(3) *Escherichia coli*, enterococci, *Vibrio cholerae*, and heterotrophic bacteria from at least 500 milliliters of influent and treated water collected in sterile bottles, in triplicate, respectively.

(u) All applicable environmental parameters such as pH, temperature, salinity, DO, TSS, DOC, POC, and turbidity must be measured at the same time samples are taken.

(v) The control and treatment test cycles may be run simultaneously or sequentially. Control samples are to be taken in the same manner as treatment samples, upon influent and discharge.

(w) The samples must be analyzed in such a way so that post collection mortality is minimized and proper analyses can be performed to determine the number of living organisms relative to the specifications of the discharge standard. Validation of the methods used must be made in the Test Plan required under § 162.060-24 of this subpart.

(x) Efficacy testing and sample analysis is meant to determine the number of living organisms in the samples both before and after treatment. The methods for the collection, handling, storage, and analysis of samples must be clearly cited and described in the Test Plan, and they must include detection, enumeration, and identification of test organisms used for determining viability. When standard methods are not available for particular organisms or taxonomic groups, methods that are developed for use must also be described in detail in the Test Plan and include any experiments conducted to validate the use of the methods. At a minimum--

(1) The efficacy of a proposed BWMS must be tested by means of standard scientific methodology in the form of controlled experiments;

(2) The efficacy of the BWMS must be determined by comparing the concentration of organisms in the treated discharge with the values of the BWDS specified in 33 CFR part 151, subparts C and D;

(3) Any statistical analyses of BWMS performance must include power analyses to evaluate the ability of the tests to detect differences;

(4) If, in any test cycle, the average organism concentration in challenge water is less than 10 times the maximum permissible values of the BWDS required in 33 CFR part 151, subparts C and D, the test cycle is invalid;

(5) If, in any test cycle, the average organism concentration in discharged control water is less than the maximum permissible values of the BWDS required in 33 CFR part 151, subparts C and D, the test cycle is invalid; and

(6) Different samples may be taken for determination of the concentration and viability of organisms in the different groups specified in the BWDS required in 33 CFR part 151, subparts C and D.

(y) Live/dead judgment must be determined by appropriate industry or government standards or methods

approved by the Coast Guard, including, but not limited to morphological change, mobility, reaction to stimulus, or staining using vital dyes or molecular techniques.

(z) All replicate samples collected within a valid set of test cycles must meet the BWDS required in 33 CFR part 151, subparts C and D.

§162.060-28 Shipboard testing requirements.

(a) The BWMS manufacturer is responsible for making all arrangements for a vessel on which to conduct shipboard tests.

(b) In addition to the land-based tests required in § 162.060-26 of this subpart, each BWMS approved under this subpart must undergo shipboard tests and evaluations that meet the requirements of this section. The shipboard testing will verify:

(1) That the BWMS under consideration for approval consistently results in the routine discharge of ballast water that meets the BWDS requirements of part 151, subparts C and D; and

(2) That the operating and maintenance parameters identified by the manufacturer in the Operation, Maintenance, and Safety Manual are consistently achieved.

(c) The vessel used as a platform for shipboard testing under this section must be selected so that:

(1) The volumes and rates of ballast water used and treated are representative of the upper end of the treatment rated capacity for which the BWMS is intended to be used;

(2) The circumstances of the vessel's operation during the period of shipboard testing provide an acceptable range of geographic and seasonal variability conditions.

(i) During testing, the ballast water used by the vessel and treated by the BWMS for the purposes of the shipboard tests must come from at least 3 different geographic locations that lie in non-neighboring marine biogeographical provinces (e.g., the IUCN Marine Ecoregions of the World, as published in the journal BioScience, 2007, Vol. 57 No. 7; or the Briggs and Eckman bioprovinces, as published in Briggs, J.C., 1995, Global biogeography. Developments in paleontology and stratigraphy, Elsevier Science, Amsterdam.)

(ii) Shipboard tests must be conducted throughout a 12 month period.

(3) The ports visited by the vessel provide adequate availability of transportation and scientific support needed to accomplish the necessary sampling and analytical procedures during the shipboard tests.

(d) The vessel's ballast water system must be provided with sampling ports arranged in order to collect representative samples of the ship's ballast water.

(1) In addition to the sampling ports requirements found in 162.060-26, sampling ports must be located:

(i) As close as practicable to the BWMS prior to testing and prior to the discharge point after testing to determine concentrations of living organisms upon uptake and prior to discharge; and

(ii) Elsewhere as necessary to ascertain the proper functioning of the BWMS;

(2) As close to the overboard outlet as possible.

(e) The efficacy of the BWMS must be tested during at least ten valid test cycles.

(1) A test cycle entails:

(i) The uptake of ballast water of the ship; the storage of ballast water on the ship;

(ii) Treatment of the ballast water by the BWMS, except in control tanks; and

(iii) The discharge of ballast water from the ship.

(2) All test cycles will include quantification of the water quality parameters on uptake;

(3) Three test cycles will entail full experimental tests and consist of quantification of the concentration of

living organisms in the ballast water on uptake and at discharge from the treatment and control tanks;

(4) Seven test cycles will consist of discharge tests and of quantification of the concentration of living organisms in the treated ballast water on discharge. No control tanks are required;

(5) Valid test cycles are as follows:

(i) For full experimental test cycles, uptake water for both the control tank and ballast water to be treated must have living organism concentrations exceeding ten times the threshold values of BWDS required in 33 CFR part 151, subparts C and D, and control tank living organism concentrations must exceed the values of the BWDS on discharge;

(ii) For full experimental test cycles and discharge test cycles, the BWMS must operate successfully as designed, maintaining control of all set points and treatment processes, including any pre-discharge conditioning to remove or neutralize residual treatment chemicals or by-products; and

(iii) For full experimental test cycles and discharge test cycles, all design or required water quality parameters must be met for the discharged water;

(6) The source water for all test cycles must be characterized by measurement of water quality parameters as follows:

(i) For all BWMS tests, salinity, temperature, and turbidity must be measured at the beginning, middle, and end of the period of ballast water uptake; and

(ii) BWMS that make use of active substances or other processes that are affected by specific water quality parameters (e.g., dissolved and particulate organic material, pH, etc), or water quality parameters identified by the manufacturer and/or the IL as being critical must be measured at the beginning, middle, and end of the period of ballast water uptake.

(f) Samples of ballast water must be collected from in-line sampling ports in either of two ways:

(1) Three replicate samples of water, collected at three discrete periods of time over the entire period of uptake or discharge (e.g. beginning, middle, end) as appropriate; or

(2) One flow averaged sample of at least 1 cubic meter collected over the entire period of uptake or discharge.

(g) The following information must be documented during all BWMS testing operations conducted on the vessel:

(1) All ballast water operations, including volumes and locations of uptake and discharge;

(2) All weather conditions and resultant effects on vessel orientation and vibration;

(3) Temperature of the BWMS;

(4) Scheduled maintenance performed on the system;

(5) Unscheduled maintenance and repair performed on the system;

(6) Data for all engineering parameters monitored as appropriate to the specific system;

(7) Consumption of all solutions, preparations, or other consumables necessary for the effective operation of the BWMS; and

(8) All parameters necessary for tracking the functioning of the control and monitoring equipment.

(h) All measurements for numbers and viability of organisms, water quality parameters, engineering performance parameters, and environmental conditions must be conducted:

(1) As described in § 162.060-26 (w) and (x) of this subpart, using standard methods from recognized bodies such as EPA (in 40 CFR Part 136), the International Standards Organization, or others accepted by the scientific community, or

(2) Using validated methods approved in advance by the Coast Guard. The possible reasons for the occurrence of an unsuccessful test cycle due to obvious mechanical or process failure or a test cycle discharge failing the discharge standard should be investigated and reported.

§ 162.060-30 Testing requirements for ballast water management system (BWMS) components.

(a) The electrical and electronic components, including each alarm and control and monitoring device of the BWMS, must be subjected to the following environmental tests when in the standard production configuration:

(1) A resonance search vertically up and down, horizontally from side to side, and horizontally from end to end, at a rate sufficiently low to permit resonance detection made over the following ranges of oscillation frequency and amplitude:

(i) 2 to 13.3 Hz with a vibration amplitude of +/-1 mm;

(ii) 13.2 to 80 Hz with an acceleration amplitude of +/- 0.7 g;

(2) The components must be vibrated in the above mentioned planes at each major resonant frequency for a period of 4 hours.

(3) In the absence of any resonant frequency, the components must be vibrated in each of the planes at 30 Hz with an acceleration of +/- 0.7 g for a period of 4 hours.

(4) Components that may be installed in exposed areas on the open deck or in enclosed spaces not environmentally controlled must be subjected to a low temperature test of -25°C and a high temperature test of 55°C for a period of two hours.

(5) Components that may be installed in enclosed spaces that are environmentally controlled, including an engine-room, must be subjected to a low temperature test at 0°C and a high temperature test at 55°C, for a period of two hours. At the end of each test, the components are to be switched on and must function normally under the test conditions.

(6) Components should be switched off for a period of two hours at a temperature of 55°C in an atmosphere with a relative humidity of 90%. At the end of this period, the components should be switched on and should operate satisfactorily for one hour under the test conditions.

(7) Components that may be installed in exposed areas on the open deck must be subjected to tests for protection against heavy seas in accordance with IP 56 of publication

IEC 529 (incorporated by reference; see § 162.060-5) or its equivalent.

(8) Components must operate satisfactorily with a voltage variation of +/- 10% together with a simultaneous frequency variation of +/- 5%, and a transient voltage of +/- 20% together with a simultaneous transient frequency of +/- 10% and transient recovery time of 3 seconds.

(9) The components of a BWMS must be designed to operate when the ship is upright and inclined at any angle of list up to and including 15° either way under static conditions and 22.5° under dynamic, rolling conditions either way and simultaneously inclined dynamically (pitching) 7.5° by bow or stern. Deviation from these angles may be permitted only upon approval of a written waiver submitted to the Coast Guard in accordance with 162.060-10(h), taking into consideration the type, size and service conditions and locations of the ships and operational functioning of the equipment for where the system will be used. Any deviation permitted must be documented in the Type Approval Certificate.

(10) The same component(s) must be used for each test required by this section, and testing must be conducted in the order in which the tests are described, unless otherwise authorized by the Coast Guard.

(b) There shall be no cracking, softening, deterioration, displacement, breakage, leakage, or damage of components or materials that affects the operation or safety of the BWMS after each test. The components must remain operable after all tests.

§ 162.060-32 Testing and evaluation requirements for Active Substances, Preparations, and Relevant chemicals.

(a) A BWMS may not use an active substance or preparation that is a pesticide unless the sale and distribution of such pesticide is authorized under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) for use in ballast water treatment, prior to submission to the Coast Guard for approval of the BWMS. This requirement does not apply to the use of active substances or preparations generated solely by the use of a device (as defined under FIFRA) on board the same vessel as the ballast water to be treated.

(b) A BWMS that uses an active substance or preparation that is not a pesticide, or that uses a pesticide that is generated solely by the use of a device (as defined under FIFRA) on board the same vessel as the ballast water to be treated, must prepare an assessment demonstrating the effectiveness of the BWMS for its intended use, appropriate dosage, hazards of the BWMS, and

means for protection of the environment, and public health. This assessment must accompany the application package submitted to the Coast Guard.

§ 162.060-34 Test Report requirements.

(a) The final results of all approval tests and evaluations must be presented in a Test Report prepared by the Independent Laboratory (IL).

(b) The Test Report must include all data regarding test conditions, quality control measures, results of all approval tests and evaluations, and all data or information supplied by the manufacturer regarding the performance of the system. The Test Report must contain all information required by 46 CFR 159.005-11 and include applicable sections for all land-based, shipboard, component, active substance, preparations and relevant chemical tests, and evaluations.

(c) The Test Report must include a summary statement that presents the IL's assessment based on the tests and evaluations conducted. The summary statement should state if the BWMS--

(i) Has been shown under the procedures and conditions specified in this subpart to meet the Ballast Water Discharge Standard requirements of 33 part 151, subparts C and D;

(ii) Is designed and constructed according to the requirements of § 162.060-20 of this subpart;

(iii) Is in compliance with all applicable U.S. Environmental Protection Agency (EPA) regulations; and

(iv) Operates at the rated capacity, performance, and reliability as specified by the manufacturer.

(d) The Test Report for a BWMS that may incorporate, use, produce, generate as a by-product and/or discharge hazardous materials, active substances, relevant chemicals and/or pesticides during its operation must include the following information in the appendix of the Test Report:

(1) A list of each active substance or preparation used in the BWMS. For each active substance or preparation that is a pesticide and is not generated solely by the use of a device on board the same vessel as the ballast water to be treated, the appendix must also include documentation that the sale or distribution of the pesticide is authorized under FIFRA for use for ballast water treatment. For all other active substances or preparations, the appendix must include documentation of the assessment specified at Section 162.060-32(b);

(2) A list of all active substances, preparations, and relevant chemicals, along with the results of all tests conducted; and

(3) A list of all hazardous materials, including the applicable hazard classes, proper shipping names, reportable quantities as designated by 40 CFR 117.1, and chemical names of all components.

(e) The Test Report must contain the following documentation:

(1) The Operation, Maintenance, and Safety Manual meeting the requirements of § 162.060-38 for the BWMS specific to the vessel where testing was conducted, with a technical description of the BWMS, operational and maintenance procedures, backup procedures in case of equipment malfunction, installation specifications, installation commissioning procedures, and any initial calibration procedures.

(2) Verification that--

(i) The BWMS installation has been carried out in accordance with the technical installation specification;

(ii) Any operational inlets and outlets are located in the positions indicated on the drawing of the pumping and piping arrangements;

(iii) The workmanship of the installation is satisfactory and, in particular, that any bulkhead penetrations or penetrations of the ballast system piping are to the relevant approved standards;

(iv) The control and monitoring equipment operates correctly;

(v) The BWMS's capacity is within the range of the Treatment Rated Capacity for which it is intended; and

(vi) The amount of ballast water treated in the test cycle is consistent with the normal ballast operations of the ship, and that the BWMS was operated at the Treatment Rated Capacity for which it is intended to be approved.

(f) The Test Report must contain the following information:

(1) Summary Statement;

(2) Executive Summary;

(3) Introduction and Background;

(4) Description of the BWMS;

(5) For each test conducted--

(i) Description of the test conditions;

(ii) Experimental design;

(iii) Methods and procedures; and

(iv) Results and discussion;

(6) Appendices, including--

(i) Test Plans;

(ii) Manufacturer supplied Operation, Maintenance and Safety Manual meeting the requirements of § 162.060-38;

(iii) Data generated during testing & evaluations;

(iv) Quality assurance and controls records;

(v) Maintenance logs;

(vi) Relevant records and tests results maintained or created during testing;

(vii) Information on hazardous materials, active substances, and relevant chemicals and pesticides; and

(viii) Permits, registrations, restrictions, and regulatory limitations on use.

§ 162.060-36 Quality Assurance Project Plan (QAPP) requirements.

The approval testing and evaluation process must contain a rigorous quality control and assurance program consisting of a Quality Assurance Project Plan (QAPP) developed in accordance with ISO/IEC 17025, General Requirements for the Competence of Calibration and Testing Laboratories. The Independent Laboratory performing approval tests and evaluations is responsible for ensuring the appropriate quality assurance and quality control procedures are implemented.

§ 162.060-38 Operation, Maintenance, and Safety Manual (OMSM).

(a) Each BWMS submitted for approval must include an Operation, Maintenance, and Safety Manual (OMSM), which includes a complete description of the BWMS, information on

the treatment process[es], design criteria, physical configuration, electrical, instrumentation, control systems, operating instructions, maintenance requirements, and all health and safety issues.

(b) Each OMSM must include the following sections:

(1) Table of contents.

(2) Manufacturer's information.

(3) Principles of system operation including--

(i) A complete description of the BWMS, methods and type[s] of technologies used in each treatment stage of the BWMS;

(ii) The theory of operation;

(iii) Any process or technology limitations;

(iv) Performance ranges and expectations of the system; and

(v) A description of the locations and conditions for which the BWMS is intended.

(4) Major system components and shipboard application including--

(i) A general description of the materials used when constructing and installing the BWMS;

(ii) A detailed description of the onboard physical configuration of the BWMS and how it will be physically integrated with shipboard ballast systems at all stages of

ballast water treatment; general arrangement of installed equipment; utility connections such as power, water, and air; interfaces with shipboard systems; and required connections to a vessel's piping systems and foundations;

(iii) A list of each major component that may be fitted differently in different vessels with a general description of the different arrangements schemes;

(iv) The range of vessel sizes, classes, and operations for which it is intended;

(v) Any vessel type[s], services or locations where the system is not intended to be used;

(vi) Maximum and minimum flow and volume capacities of the system;

(vii) The dimensions and weight of the complete system and required connection and flange sizes for all major components;

(viii) A description of all actual or potential effects of the BWMS on the vessel's ballast water, ballast water tanks, and ballast water piping and pumping systems;

(ix) A list of all active substances, relevant chemicals, and pesticides generated or stored onboard the vessel to be used by the BWMS; and

(x) Information on whether the BWMS is designed to be used in hazardous locations as defined in the NEC

(incorporated by reference; see § 162.060-5) and in IEC 79-0 (incorporated by reference; see § 162.060-5).

(5) System and major system component drawings as applicable under 46 CFR § 56.01-10(b), including--

(i) Process flow diagram(s) of the BWMS showing the main treatment processes, chemicals, and monitoring and control devices for the BWMS;

(ii) Footprint(s), drawings, and system schematics showing all major components and arrangements;

(iii) Drawings of the pumping and piping arrangements, power panels, and all equipment provided with the BWMS;

(iv) All treatment application points, waste or recycling streams, and all sampling points integral to the specific BWMS;

(v) All locations and the sizes of all piping and utility connections for power, water, compressed air or other utilities as required by the BWMS;

(vi) Detailed electrical plans of each relevant component of the BWMS as described in 46 CFR § 110.25-1 and electrical/electronic wiring diagrams that include the location and electrical rating of power supply panels and BWMS control and monitoring equipment;

(vii) Unit(s), construction materials, standards and labels on all drawings of equipment, piping, instruments, and appurtenances; and

(viii) An index of all drawings and diagrams

(6) A description of the BWMS's control and monitoring equipment and how it will be integrated with the existing shipboard ballast system, including--

(i) Power demand;

(ii) Main and local control panels;

(iii) Power distribution system;

(iv) Power quality equipment;

(v) Instrumentation and control system architecture;

(vi) Process control description;

(vii) Operational set points, control loops, control algorithms, and alarm settings for routine, maintenance, and emergency operations; and

(viii) All devices required for measuring appropriate parameters such as: pressure, temperature, flow rate, water quality, power, and chemical residuals.

(7) A description of all relevant standard operating procedures including, but not limited to:

(i) System start-up and system shutdown procedures and times;

(ii) Emergency shutdown and system by-pass procedures;

(iii) Requirements to achieve treatment objectives (e. g., time following initial treatment, critical dosages, residual concentrations, etc);

(iv) Operating, safety, and emergency procedures;

(v) System limitations, precautions, and set points;

(vi) Detailed instructions on operation, calibration and zeroing of each monitoring device used with the system;

(vii) Personnel requirements for the BWMS including number and types of personnel needed, labor burden, and operator training or specialty certification requirements.

(8) A description of the preventive and corrective maintenance requirements of the BWMS, including:

(i) Inspection and adjustment procedures;

(ii) Troubleshooting procedures;

(iii) An illustrated list of parts and spare parts;

(iv) A list of recommended spare parts to have during installation and operation of the BWMS;

(v) Use of tools and test equipment in accordance with the maintenance procedures; and

(vi) Point[s] of contact for technical assistance.

(9) A description of the health and safety risks to the personnel associated with the installation, operation, and maintenance of the BWMS including, but not limited to:

(i) The storage, handling, and disposal of any hazardous wastes;

(ii) Any health and safety certification/training requirements for personnel operating the BWMS; and

(iii) All material safety data sheets for hazardous or relevant chemicals used, stored or generated by or for the system.

(c) If any information in the OMSM changes as a result of approval testing and evaluations, a new OMSM must be submitted.

§ 162.060-40 Requirements of Independent Laboratories (IL).

(a) Each request for designation as an Independent Laboratory (IL) authorized to perform approval tests must either be delivered by visitors or through the mail to the Commandant (CG-521), Office of Design and Engineering Standards, 2nd Street SW, Washington, DC 20593, in a written or electronic format.

(b) Each request must include the following:

(1) Name and address of the IL;

(2) Each type of equipment the IL proposes to test; and

(3) A description of the IL's capability to perform approval tests including detailed information on the following:

(i) Management organization, including personnel qualifications;

(ii) Equipment available for conducting sample analysis;

(iii) Materials available for approval testing;

(iv) Each of the IL's test rigs; and

(v) Disposal procedures for all treated and control water.

(c) The Coast Guard will review each request submitted to determine whether the IL meets the requirements of this section.

(d) To obtain authorization to conduct approval tests—

(1) An IL must have the management organization, equipment for conducting sample analysis, and the materials necessary to perform the tests;

(2) The loss or award of a specific contract to test equipment must not be a substantial factor in the IL's financial well being; and

(3) The IL must be free of influence and control of the manufacturers and suppliers of the equipment.

(e) Each test and evaluation must be performed by the IL and accepted by the Coast Guard. A list of independent laboratories accepted by the Coast Guard may be found at http://cgmix.uscg.mil/, or may be obtained by contacting the Commandant (CG-521), 2100 2nd Street SW, Washington, DC 20593. ILs may not be subcontracted by an IL for BWMS approval testing unless previously authorized by the Coast Guard. If the IL identified in the application requests authorization to subcontract approval tests or evaluations, the Coast Guard must evaluate the suitability of each identified IL prior to conducting any tests or evaluations required under this subpart. A request for authorization to subcontract must be sent to the Commandant (CG-521), 2100 2nd Street SW, Washington, DC 20593.

(f) Upon receipt of the approval application, the IL will conduct a readiness evaluation and determine the acceptability for testing.

(g) The readiness evaluation will examine the design and construction of the BWMS to determine whether there are any fundamental problems that might constrain the ability of the BWMS to manage ballast water as proposed by the manufacturer or to operate it safely onboard vessels. This evaluation must consider the following:

(1) The health and safety of the crew, including potential long term effects as determined by the EPA;

(2) Any potential adverse environmental effects as determined by the EPA;

(3) Interactions with vessel systems and cargo and the potential impacts to a vessel, including effects on corrosion in the ballast water system and other spaces;

(h) To be approved for testing and evaluations, a BWMS must:

(1) Be designed and constructed according to the requirements of § 162.060-20;

(2) Meet the definition of a complete BWMS, as defined in this subpart, to include both ballast water treatment equipment and control and monitoring equipment. Only complete systems in the configurations in which they are intended for sale and use will be accepted for approval testing. The Coast Guard will not separately approve treatment, control, or monitoring components; and

(3) Meet all existing safety and environmental regulatory requirements for all locations and conditions where the system will be operated during the testing and evaluation period.

(i) The IL has the right to reject a proposed BWMS for testing and evaluation if it does not satisfy the

requirements in (h), is not deemed ready for approval testing and evaluations, or, if for technical or logistical reasons, that IL does not have the capabilities to accommodate the BWMS for testing or evaluation.

(j) For each approval test to be completed, the IL must prepare a written test plan in accordance with § 162.060-24.

(k) Upon notification by the IL that the BWMS is acceptable for testing, the manufacturer must provide a complete BWMS for testing and evaluation to the IL.

(l) For all land-based tests, the BWMS must be set up in accordance with the BWMS Operation, Maintenance and Safety Manual, with respect to mounting water supply and discharge fittings.

(m) Prior to commencing land-based or shipboard testing required under this subpart, the manufacturer must sign a written statement to attest that the system was properly assembled and installed at the IL or onboard the test vessel.

(n) All approval testing and evaluations must be conducted in accordance with testing requirements of this subpart and within the range or rated capacity of the BWMS.

(o) Upon completion of all approval tests and evaluations, the IL must follow the requirements of 46 CFR

159.005-9(a)(5) and ensure a complete Test Report is forwarded to the Commanding Officer, U.S. Coast Guard Marine Safety Center, Jemal Building, JR 10-0525, 2100 Second Street SW, Washington, DC 20593.

Dated: August 17, 2009

THAD W. ALLEN
Admiral, U.S. Coast Guard
Commandant

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