

BALLAST WATER FREQUENTLY ASKED QUESTIONS

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1. *33 CFR 151.2000 – Purpose*

1.1 How are the Coast Guard ballast water management (BWM) regulations and IMO BWM Convention different?

The main difference between the Coast Guard BWM regulations and the International Maritime Organization (IMO) BWM Convention is in the equipment testing and verification protocols. In 2005, as updated in 2008, the IMO released G8 Guidelines for the type approval of ballast water management systems (BWMS) by flag administrations. At present, these are recommendatory guidelines, as they have not come into force as a mandatory code yet. The guidelines are applied differently by flag administrations, and they do not require type approval testing to be conducted by an organization independent of the manufacturer. In contrast, U.S. type approval testing procedures are mandatory, detailed, and specify testing that is independent from manufacturers.

It is important to note that the ballast water discharge standards in the Coast Guard regulations and the IMO BWM Convention are similar, but not the same. The discharge standard in regulation D-2 of the BWM Convention is written in terms of “viable” (meaning able to reproduce) organisms, while the Coast Guard’s discharge standard is written in terms of “living” organisms. Also, as noted here, the testing requirements to prove that a BWMS meets the discharge standards are different.

1.2 Now that the BWM Convention is ratified, did U.S. regulations change after it entered force?

The Coast Guard BWM regulations did not change after the BWM Convention entered force in September 2017. The Coast Guard is committed to protecting U.S. waters from invasive species and supports a strong national and international solution that does not disrupt the continuous flow of maritime trade which drives the global economy. In this spirit, the Coast Guard will continue to work with its domestic and international partners to identify and highlight the differences between the Coast Guard BWM regulations and the IMO BWM Convention. The Coast Guard will also continue to participate in BWM related discussions at the IMO. However, it is important to note that the United States is currently not a party to the BWM Convention.

1.3 What differences are there between the Coast Guard’s BWM program and Canada’s BWM program?

The primary difference between the United States and Canada’s BWM programs is that Canada’s is derived from the IMO BWM Convention, and the U.S.’, a non-signatory, is established pursuant to domestic law (NANPCA/NISA). Both countries support a strong, environmentally sustainable, Great Lakes economy. In 2012, the Coast Guard’s BWM regulations went into effect, and in 2013, EPA issued its revised Vessel General Permit. These implement enforceable requirements on certain vessels that operate in waters of the United States, including the Great Lakes, to meet a ballast water discharge standard and manage other discharges incidental to the normal operation of a vessel. The Coast Guard, EPA, and Transport Canada maintain an ongoing dialog to identify and minimize, to the extent possible, differences

in their respective regulatory requirements to manage ballast water and other potentially harmful discharges from vessels.

1.4 Has Canada ratified the IMO Convention?

Canada ratified the Convention in April 2010, but the U.S. government is not a signatory. This has resulted in three similar, but different national ballast water regimes – Coast Guard, EPA, and Canada (IMO) – on BWM requirements (e.g., Canada requires treatment and exchange for vessels arriving from beyond the EEZ), vessel extension provisions, and applicability to certain ships.

2. *33 CFR 151.2010 & 151.2015 – Applicability and Exemptions*

2.1 Does the definition of the term “Exclusive Economic Zone” encompass the joint U.S. EEZ and the Canadian EEZ and, if so, how does this affect the BWM requirements for vessels transiting from Canada across the EEZ, within 200 nm of land, to a port or place in the US, including the Great Lakes?

Yes, the definition of the term "Exclusive Economic Zone" (EEZ) encompasses both the U.S. EEZ and the Canadian EEZ (see 33 CFR 151.1504).

Seagoing vessels that operate in more than one COTP zone, do not operate outside of the U.S. or Canadian EEZ, and are less than or equal to 1600 gross register tons or less than or equal to 3,000 gross tons (International Convention on Tonnage Measurement of Ships, 1969), are exempt from the requirements of 33 CFR 151.2025. Vessels that meet these criteria are required to comply with the management practices, and reporting and recordkeeping requirements, found in 33 CFR 151.2050, 151.2060, and 151.2070, respectively.

This exemption applies in equal part to vessels operating solely within the Great Lakes or vessels that enter the Great Lakes that have not operated on the waters beyond the U.S. or Canadian EEZs.

2.2 What does the term “exclusively” in 33 CFR 151.2015(c) and 33 CFR 151.2015(d)(3) mean for vessels that operate or take on and discharge ballast water “exclusively” in one Captain of the Port (COTP) Zone?

In 33 CFR 151.2015(d)(3), the term “exclusively” refers to the uptake and discharge location of ballast water. If a vessel takes up and discharges ballast water solely in one COTP zone, and then operates outside of that COTP zone, the vessel is exempt from the BWM requirements of 33 CFR 151.2025. The vessel is still required to meet the reporting and recordkeeping requirements of 33 CFR 151.2060 and 151.2070. If a vessel takes up ballast water outside of the COTP zone in which it otherwise exclusively takes up and discharges ballast water, the vessel is no longer eligible for this exemption until it has cleaned the ballast water system, including removal of all residual sediments.

2.3 *Are the ballast water regulations applicable to floating production storage and offloading units (FPSOs) operating on the U.S. Outer Continental Shelf?*

Under the final rule, if the FPSOs are operating within 12 nm of the U.S. baseline, then the requirements apply. However, if the FPSOs are outside 12 nm, 33 CFR 151 subpart D does not apply.

2.4 *What BWM regulations apply to inland towing vessels?*

Non-seagoing vessels (i.e., vessels that operate exclusively within the boundary line established by 46 CFR part 7, including vessels that navigate exclusively on inland waters) are exempt from the ballast water management requirements in 33 CFR 151.2025 (see 33 CFR 151.2015(c) and (d).) Non-seagoing vessels are required to comply with 33 CFR 151.2050 (Additional requirements - nonindigenous species reduction practices), 33 CFR 151.2060 (Reporting Requirements), and 33 CFR 151.2070 (Recordkeeping Requirements).

2.5 *Do the BWM regulations apply to large recreational yachts?*

Although not listed in the exemptions, recreational vessels of any size are not subject to any of the requirements of 33 CFR 151 Subpart D, as the applicability specifically states that the regulations apply to non-recreational vessels.

Note - The regulation does not define recreational vessels. Some vessels that are represented as large recreational yachts may operate commercially and, therefore, are not recreational. For example, large yachts that may be time chartered or voyage chartered to a client are commercial vessels and are not recreational. Also, vessels that are bareboat chartered, but with the intent of the charterer to carry passengers for hire, are also commercial vessels. In such cases, these vessels must comply with 33 CFR 151 Subpart D in its entirety, unless some other exemption in Subpart D applies. See 33 CFR 151.2015 and 33 CFR 151.2015, Table 1.

3. *33 CFR 151.2025 – Ballast Water Management Requirements*

3.1 *Will vessels currently required to conduct ballast water exchange be required to install BWMS?*

Ballast water exchange is an accepted ballast water management method until the vessel's compliance date under the schedule in 33 CFR 151.2035, or as extended in 33 CFR 151.2036. After a vessel's compliance date, the vessel is required to use one of the acceptable methods listed in 33 CFR 151.2025, except for ballast water exchange.

3.2 *What are the options for deck barges that operate outside of 200 nm? Are deck barges required to install a BWMS?*

The Coast Guard's regulations apply to unmanned deck barges towed more than 200 nm offshore if the barge has ballast tanks and operates in waters of the U.S. Title 33 CFR 151.2025 provides several acceptable options for managing ballast water. Although installing and operating a CG approved BWMS is an acceptable option in these regulations, a BWMS is not technically required as there are other options available. If, despite all efforts, compliance with the requirement under 33 CFR 151.2025(a) is not possible, the barge owner/operator may apply for an extension to the vessel's compliance date under 33 CFR 151.2036.

3.3 Are BWM plans required to be approved by the Coast Guard?

The Coast Guard does not "approve" BWM plans developed under 33 CFR 151.2050(g). The Coast Guard will review these plans during the course of normal Port State Control examinations and vessel inspections.

3.4 What are the BWM requirements for mobile offshore drilling units?

33 CFR 151 subpart D does not apply to mobile offshore drilling units (MODUs) that operate exclusively beyond the U.S. Territorial Sea (i.e., beyond 12 nm from the U.S. baseline.) If a MODU enters waters of the U.S. (e.g., weather avoidance, repairs, maintenance, etc.) and has ballast water onboard, it must comply with the applicable portions of 33 CFR 151.

In the case of self-elevating MODUs, also known as jack-ups, jack-up rigs, or self-elevating units, "pre-load" tanks may be filled with water to control or maintain the vessel's trim, draught, stability, or stresses of the vessel. In this case, the pre-load water is considered to be ballast water, and any discharge of this water into waters of the U.S. must be managed in accordance with the ballast water regulations. If the pre-load water meets the definition of ballast water, it is recommended the MODU's BWM plan include a procedure to clean the pre-load tanks before taking up, and subsequently discharging, the pre-load water into U.S. waters.

3.5 Can a MODU arriving from outside waters of the U.S. with potable water in the pre-load tanks discharge the water into waters of the U.S.?

It depends on where the potable water was sourced. If the water is from a U.S. public water system, as defined in 40 CFR 141.2, the potable water may be discharged into the waters of the U.S. (Note: the tanks must have been previously cleaned, including removal of residual sediments, and not subsequently have had ambient water introduced.) If the potable water is from a non-U.S. water system, it must be managed using an approved management method (see 33 CFR 151.2025) before discharging it into waters of the U.S.

3.6 How might a vessel-specific BWM plan address situations such as the failure of the installed BWMS or the unexpected unavailability of its BWM method?

In accordance with 33 CFR 151.2050, vessels subject to the Coast Guard's BWM regulations must have a vessel-specific BWM plan that describes the vessel's strategy for compliance with the regulations. The plan must include actions for implementing the mandatory BWM requirements and practices. A robust BWM plan should:

- (1) be a living document, unique to a particular vessel's operations and route;
- (2) include specifics on how the vessel will comply with the BWM requirements in 33 CFR 151.2025 and 151.2050;
- (3) be reviewed and updated routinely to incorporate lessons learned; and
- (4) include alternate options for compliance in the event of the failure of its BWMS or if its intended BWM method is unexpectedly unavailable. Examples of unexpectedly unavailable include conditions that exceed the ability of the installed BWMS. Alternate options should first consider the approved methods in 33 CFR 151.2025(a).

As discussed in the article titled "[Contingency planning for ballast water management](#)" on the Coast Guard's Maritime Commons Blog, contingency planning is an important aspect of the vessel's BWM strategy for compliance, and contingency planning should be included in the vessel-specific BWM plan. This is discussed further in [CVC Policy Letter 18-02](#).

3.7 How does a vessel get its potable water system recognized as a U.S. public water system (PWS) and accepted as ballast water pursuant to 33 CFR 151.2025 (a)(2)?

The Coast Guard is not part of the process to determine whether a potable water system can be designated as a U.S. PWS. U.S. EPA or any State delegated by U.S. EPA makes such designations. The ship's U.S. PWS must meet all requirements in Title 40, Code of Federal Regulations for such designation. Given that a ship is mobile and may operate in more than one State's waters, it would be appropriate for the owner/operator of a ship needing such designation to first contact the U.S. EPA to inquire further about designation of the ship's potable water system as a U.S. PWS. Further information may be found on the EPA's drinking water contact page, which can be found [here](#).

If a ship achieves designation as a U.S. PWS, either from the U.S. EPA or a delegated State, they may share this information with the Coast Guard and include this information in the ship's ballast water management plan.

3.8 May a COTP issue a waiver of compliance that allows a vessel to discharge unmanaged ballast water into waters of the U.S.?

Title 33 CFR 151 subparts C and D do not allow a COTP to issue a waiver of compliance from the regulatory requirements. If a vessel claims "extraordinary circumstances," as provided in 33 CFR 151.2040, a COTP may allow an unmanaged discharge of ballast water, but only to resolve vessel safety or stability concerns. For a vessel past its compliance date, ballast water exchange is not an approved alternative ballast water management method. A person who violates the regulations may incur penalties as provided at 33 CFR 151.1518 and .2080.

3.9 What compliance alternatives are available for a vessel that is past its compliance date and which has not implemented an approved BWM method in accordance with 33 CFR

151.1510(a) and 151.2025(a)?

33 CFR part 151 subparts C and D do not provide for a waiver of compliance that would allow a vessel past its compliance date to discharge unmanaged ballast water into waters of the U.S. except in cases where the master of the vessel has identified safety or stability concerns (see 33 CFR 151.2040). A vessel past its compliance date may not use ballast water exchange as a means to comply with the U.S. ballast water regulations.

In cases where a vessel is past its compliance date and arrives in port to undertake cargo loading/BW discharging operations, and the vessel has not implemented an approved BW management method, a COTP may not allow the vessel to discharge unmanaged BW into U.S. waters. Prior to arrival, and subject to all due safety considerations by the master, a vessel may elect to discharge beyond the applicability of the BWM regulations (12 nm offshore) in a quantity that allows it to enter port and commence cargo loading operations without an accompanying discharge within 12 nm of shore. If the vessel is unable to complete its cargo loading operations without discharging ballast water, it would be required to cease cargo loading. The vessel master would then need to determine the options available to the vessel.

4. [33 CFR 151.2026 – Alternate Management Systems](#)

4.1 *Does the Coast Guard have a preferred Alternate Management System application submission model?*

There is no approved application template for organizing an Alternate Management System (AMS) application. A checklist is included at the end of [CG-OES Policy Letter 12-01](#). Applicants are encouraged to use the checklist and structure their applications in accordance with that checklist to expedite our review.

4.2 *What will be the basis for denial of a request for AMS determination?*

Requests for AMS determination are evaluated on a case-by-case basis. To be eligible for AMS determination, the BWMS manufacturer must include the information listed in 33 CFR 151.2026. Included in the requirements for AMS approval, the BWMS must have been type approved by a foreign Administration pursuant to the standards set forth in the IMO Ballast Water Management Convention. Type approval dossiers that do not conform to the procedures and criteria in the G8 and G9 guidelines adopted by the IMO will be at risk of denial of AMS status. Further information is available in [CG-OES Policy Letter 12-01](#).

4.3 *Is an AMS determination the same as type approval?*

No, an AMS determination is an interim measure that allows foreign administration approved BWMS, installed prior to the availability of Coast Guard type approved BWMS and before the vessel's compliance date as specified in table 33 CFR 151.2035(b), to be used on a vessel for up to five years after the vessel would otherwise be required to comply with the discharge standard. Under the Coast Guard regulations, an AMS may not be installed if a type approved system is available for a given class or type of vessels, or for a specific vessel.

4.4 *To what extent will changes to a BWMS which has been type approved by a foreign administration be permitted when applying for AMS determination? Will the conditions of 46 CFR 162.060-16 regarding “changes to an approved BWMS” apply?*

The regulations in 46 CFR 162.060 only apply to a BWMS submitted to the MSC for evaluation and approval as a Coast Guard type approved BWMS, not an AMS. With regard to BWMSs which have previously received designation as an AMS, and for which manufacturers propose to make modifications to the AMS, the procedures set forth in 33 CFR 151.2026 should be followed, including submission of a description of the modifications. Prior to submission of either a new request for AMS designation, or submission of a request for approval of modifications to an existing AMS, manufacturers must receive approval from the foreign administration with jurisdiction.

4.5 *May a vessel that has been fitted with an AMS employ that system instead of conducting ballast water exchange prior to the vessel's original or extended ballast water discharge standard compliance date?*

Yes. Under 33 CFR 151.2025(a)(3), a vessel may use an AMS instead of performing ballast water exchange so long as the AMS was installed prior to the original or extended date that the vessel is required to comply with the ballast water discharge standard. A vessel may then employ the AMS for no longer than five years after the vessel's original or extended ballast water discharge standard compliance date.

5. [33 CFR 151.2030 – Ballast Water Discharge Standard](#)

5.1 *What is the Coast Guard ballast water discharge standard?*

The Coast Guard’s Final Rule on Standards for Living Organisms in Ships’ Ballast Water Discharged in U.S. Waters established a discharge standard for allowable concentration of living organisms in ship’s ballast water discharged in waters of the U.S. Vessels employing a Coast Guard-approved BWMS must meet the following discharge standard in accordance with the implementation schedule described in the next FAQ.

- (1) For organisms greater than or equal to 50 micrometers in minimum dimension: discharge must include fewer than 10 organisms per cubic meter of ballast water.
- (2) For organisms less than 50 micrometers and greater than or equal to 10 micrometers: discharge must include fewer than 10 organisms per milliliter (mL) of ballast water.
- (3) Indicator microorganisms must not exceed:
 - i. For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of less than 1 colony forming unit (cfu) per 100 mL.
 - ii. For *Escherichia coli*: a concentration of fewer than 250 cfu per 100 mL.

- iii. For intestinal enterococci: a concentration of fewer than 100 cfu per 100 mL.

6. 33 CFR 151.2035 – Implementation Schedule

6.1 What is the implementation schedule for approved BWM methods?

As set forth in the following table, the BWM regulation establishes an implementation schedule based on vessel construction dates and ballast water capacity.

Table 151.2035(b)			
	Vessel’s ballast water capacity	Date constructed	Vessel’s compliance date
New vessels	All	On or after December 1, 2013	On delivery
Existing vessels	Less than 1500	Before December 1, 2013	First scheduled drydocking* after January 1, 2016
	1500-5000	Before December 1, 2013	First scheduled drydocking* after January 1, 2014
	Greater than 5000	Before December 1, 2013	First scheduled drydocking* after January 1, 2016

*Drydocking means hauling out of a vessel or placing a vessel in a drydock or slipway for an examination of all accessible parts of the vessel's underwater body and all through-hull fittings – 46 CFR 71.50-1.

6.2 May a vessel avoid installation of a BWMS by its implementation date if it will not discharge ballast water within 12 nautical miles of the US?

Yes, vessels that do not discharge ballast water into waters of the United States are not required to install a BWMS (33 CFR 151.2025(a)(4)). 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 CFR 151, 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, per 33 CFR 151.1504.

6.3 The term “first scheduled drydocking” is not defined. Is an “in-water survey” (also known as an underwater inspection in lieu of drydocking, or UWILD) considered the “first scheduled drydocking” for the purposes of this regulation?

No, an in-water survey/UWILD is not considered the “first scheduled drydocking.” Clarifying guidance on this issue is provided in [NVIC 01-18](#) and [Marine Safety Information Bulletin \(MSIB\) 13-15](#).

7. 33 CFR 151.2036 – Ballast Water Extension Program

7.1 How does Coast Guard grant ballast water extensions now that Coast Guard type-approved BWMSs are available?

U.S. regulations allow the Coast Guard to grant an extension to a vessel's compliance date if the master, owner, operator, agent or person in charge (collectively "owner/operator") documents that, despite all efforts, compliance with one of the approved ballast water management methods, including installation of a Coast Guard type-approved BWMS, is not possible by an upcoming compliance date. The Coast Guard may extend the compliance date to facilitate the installation of an acquired type-approved BWMS; the installation of an acquired BWMS that has completed independent lab testing for type approval and is under review for type-approval; or to facilitate another method to come into compliance with the discharge standard. These extensions will generally be granted to a specific date no more than 12 months past an upcoming compliance date.

If a vessel is unable to qualify for an extension, there are other ways that vessels can comply with U.S. BWM regulations. These include:

- (1) Temporary use of a foreign Administration type approved BWMS that has been accepted by the Coast Guard as an AMS (five-year limitation) if installed in compliance with 33 CFR Part 151
- (2) Use of ballast water obtained exclusively from a U.S. public water system
- (3) Discharge of ballast water to a reception facility
- (4) Not discharging unmanaged ballast water inside 12 nm

For further information, please see [NVIC 01-18](#), which provide information concerning the BW extension program, vessel compliance dates, and the use of an AMS.

7.2 The BWM regulations state that requests for extensions must be submitted no later than 12 months before the scheduled compliance date listed in 33 CFR 151.2035(b). Does this mean the "keel-laying" date, the delivery date of the vessel, the first scheduled dry-docking date, or the date when the vessel will begin operating in U.S. waters?

The compliance date for new build vessels is the delivery date of the vessel. The compliance date for existing vessels is based on the vessel's first scheduled drydocking date after the date specified in table 33 CFR 151.2035(b). New build and existing vessels are classified by the construction date. 33 CFR 151.2005(b) defines "constructed" as when:

- (1) The keel of a vessel is laid;
- (2) Construction identifiable with the specific vessel begins;
- (3) Assembly of the vessel has commenced and comprises at least 50 tons or 1 percent of the estimated mass of all structural material, whichever is less; or
- (4) The vessel undergoes a major conversion.

8. 33 CFR 151.2050 – Sediment and Fouling Organisms

- 8.1 *33 CFR 151.2050(g)(3) requires that the ballast water management plan include fouling maintenance and sediment removal procedures. If vessels already have these procedures as part of their normal operating procedures in sufficient detail to meet the requirements of this section, can the BWM plan incorporate the procedures by reference?*

Referencing other operational documents in the BWM plan is sufficient. All referenced documents must be onboard and available for examination by the Coast Guard.

- 8.2 *Can sediment from ballast tanks be disposed of within the EEZ and, if so, at what minimum distance?*

Sediment should be disposed of as far from shore as practicable, but must be outside 12 nm, and in accordance with the Coast Guard's "[Guidance on Verification of Biofouling Maintenance and Sediment Removal Procedures](#)," dated November 5, 2012.

9. 33 CFR 151.2060 – Ballast Water Management Reporting

- 9.1 *Are vessels that use only ballast water sourced from a U.S. public water system subject to the BWM reporting requirements?*

Vessels employing this BWM method are subject to applicable requirements of 33 CFR 151 subparts C and D, including the reporting requirements.

- 9.2 *Is there an alternative to the BWM reporting requirements under 33 CFR 151.2060?*

The BWM regulations allow owners/operators to propose alternative methods of reporting (33 CFR 151.2065) for vessels other than those entering the Great Lakes or Hudson River after operating outside the U.S. Exclusive Economic Zone or the Canadian equivalent. The Coast Guard may approve a written request for alternative methods if they are at least as effective as those required in 151.2060, and compliance with 151.2060 is economically or physically impractical. The Coast Guard Environmental Standards Division (CG-OES-3) will approve or disapprove a request within 30 days of receipt. More information on equivalent reporting is available at the [National Ballast Information Clearinghouse \(NBIC\) website](#).

- 9.3 *Can a downloaded BWM reporting form in PDF format be sent via personal email to nbic@ballastreport.org?*

Yes, NBIC will accept the current [BWM report form](#) as a conventional email attachment. From the NBIC website, the vessel owner/operator may download and save a PDF of the BWM reporting form. Using Adobe Reader version 9 or later, the form may be used as a template for subsequent reports.

9.4 *In the event an original BWM reporting form contains erroneous information, may a vessel owner/operator/agent submit an amended/corrected form to NBIC?*

Yes. If a corrected form needs to be submitted, please choose “Corrected Form” either on the PDF form or in the Web App.

9.5 *May a vessel submit its BWM reporting form more than 24 hours prior to arrival?*

Yes, the BWM reporting regulations do not preclude a vessel from submitting its report more than 24 hours prior to arrival.

10. 33 CFR 151.2070 – Ballast Water Management Recordkeeping

10.1 *Are vessels that use only ballast water sourced from a U.S. public water system subject to the BWM recordkeeping requirements?*

Vessels employing this BWM method are subject to applicable requirements of 33 CFR 151 subparts C and D, including the recordkeeping requirements.

10.2 *Instead of carrying an invoice for dock water/municipal water taken on in ballast tanks, is it acceptable for vessels to make an entry in the ship’s log detailing the time, date, location, etc. of municipal water loaded?*

33 CFR 151.2025 (a)(2) requires a receipt, invoice, or other documentation from the U.S. public water system (PWS) operator indicating the water came from that system. Other acceptable documentation could include a letter from the PWS, a formal stamp or notation in the vessel’s logbook from the PWS, or some other formal means of documentation from the PWS.

10.3 *Do ballast water reports need to be retained on board the vessel?*

Pursuant to 33 CFR 151.2070(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, must ensure the maintenance of written or digital records that include the information required to be reported by § 151.2060, including the sediment information in 151.2060(a)(1). The recordkeeping requirement may be met by maintaining a copy of the report filed with the NBIC. These records may be stored on digital media but must be readily viewable by the Coast Guard during an inspection.

10.4 *How do I know NBIC received my BWM reporting form?*

The NBIC website is designed to provide immediate confirmation of receipt of the ballast water management reporting form. Vessel operators can print a hardcopy of the receipt or download to a file (or both) for recordkeeping purposes.

11. 33 CFR 151.2075 – Enforcement and Compliance

11.1 Are Coast Guard ballast water management requirements part of the Foreign Tank Vessel Exam Book (FTVEB) used by Coast Guard inspectors during port State control exams?

Yes, the BWM requirements are reflected in the FTVEB, as well as other exam books as appropriate.

11.2 Will BWMS be regularly tested for compliance once they are installed on board vessels?

Coast Guard will assess BWM compliance by vessels during inspections of domestic vessels and Port State Control examinations of foreign vessels. Assessment of a vessel's compliance with the BWM requirements is multi-faceted, and may include testing samples of ballast water. Proper documentation, crew knowledge, and discharge quality are all subject to evaluation during compliance assessments, as are system installation, maintenance, and operation. The Coast Guard has the authority to take and test samples of ballast water for compliance with the discharge standard.

11.3 How will U.S. flag vessels demonstrate ballast water management compliance to Port State authorities in non-U.S. ports?

U.S. flag vessels in a foreign port will have to comply with that Port State's national laws and regulations, and must also comply with the Convention if the port state is signatory to it. U.S. flag vessels must have an approved BWM Plan that meets the Convention's requirements as well as meeting the requirements in 33 CFR 151.2050(g). The Plan must include vessel actions for implementing the mandatory BWM requirements and practices. [CG-CVC Policy Letter 17-05](#) contains further discussion about compliance by U.S. flagged vessels with the requirements of the Convention.

11.4 Does the Coast Guard or EPA give compliance waivers from the BWM regulations based on the sailing area of a vessel? In other words, is a vessel allowed to operate within a limited sailing or trading area without complying with the BWM regulations if the vessel operates exclusively in that trading area?

Questions related to EPA compliance and enforcement policies under the VGP should be referred to the EPA. Generally, there is no "waiver" available to a non-recreational vessel equipped with ballast tanks that would allow it to discharge unmanaged ballast water into waters of the U.S. However, certain exemptions are available to vessels which may limit the applicability of all or some of the BWM regulatory requirements (see 33 CFR 151.2015 – Exemptions; 33 CFR 151.2040 - Discharge of ballast water in extraordinary circumstances.)

11.5 What steps must a vessel owner/operator take when destined for a port or place in the U.S. and the vessel's BWMS stops operating properly, or the vessel's BWM method is unexpectedly unavailable?

33 CFR 151.2040 provides that if the vessel's installed BWMS stops operating properly during a voyage, or the vessel's BWM method is unexpectedly unavailable, the vessel owner/operator

must report the problem to the nearest COTP as soon as practicable. It is also recommended that the vessel owner/operator contact the COTP at the next port of call, if different than the nearest COTP, as soon as practicable. The vessel may continue to the next port of call, subject to the directions of the COTP. See [CVC Policy Letter 18-02](#) for more details.

Owners/operators are also advised that the BWM report to NBIC does not substitute for notification to the COTP in the event a BWMS stops operating properly, or the vessel's BWM method is unexpectedly unavailable.

12. 46 CFR 162.060-10 – Approval Procedures

12.1 Can a manufacturer submit testing proposals or requests for alternatives with the Letter of Intent (LOI)?

No, the purpose of an LOI is to notify the Coast Guard that testing is planned. Testing proposals must be coordinated with the independent laboratory (IL). Requests for alternatives must be submitted by the manufacturer or IL in accordance with 46 CFR 162.060-10(b)(1).

12.2 Can a manufacturer use more than one IL to carry out the test program?

Yes. A manufacturer may use the services of more than one IL to conduct the required tests; however, the Coast Guard requires that a single IL coordinate and oversee all testing and reporting for each application. The coordinating IL must evaluate test reports generated by labs not under its purview for compliance with the approval regulations. The coordinating IL may reject test reports upon a finding that the testing failed to comply with IL quality assurance requirements and/or regulations.

12.3 What documentation is required to establish a third party consultant as the point of contact for a manufacturer?

A letter from the manufacturer to MSC which identifies the designated point of contact for the manufacturer regarding the type approval application is acceptable. The designated point of contact must be identified in the LOI.

12.4 Can a manufacturer or IL seek waiver from testing requirements with a 10(b)(1) request?

No. The regulations do not allow for a waiver of test requirements. However, manufacturers and ILs may request approval of alternatives as equivalent to the requirements. 10(b)(1) requests must include the justification for any proposed changes and contain full descriptions of any proposed alternative tests.

12.5 Can a manufacturer apply for type approval with multiple filters?

Yes. The Coast Guard has developed a standard procedure for testing alternate filters:

- (1) The manufacturer must first conduct testing in accordance with 46 CFR 162.060 on the BWMS system with a primary filter of their choosing.
- (2) A design study must be completed by the manufacturer to assess the similarities between the primary filter and all alternate filters proposed. The IL will review the information provided to assess equivalence to the original filter and compatibility with the overall BWMS. This design study should include comparisons of the following:
 - i. General arrangement of the system and filter interface
 - ii. Filter mesh type, rating, material, and design specification (ASME, ISO, etc.)
 - iii. Rated minimum and maximum filter flow of each filter as identified by the manufacturer
 - iv. Minimum and maximum filter operating pressures of each filter
 - v. Differential pressure of the clean filter at maximum flow rate
 - vi. Differential pressure set point to initiate the cleaning/back flush cycle
 - vii. Filter flow characteristics which note the effects of cleaning cycles on throughput and any other unique characteristics of the component
 - viii. Effective filtration area
 - ix. Filtration velocity (Flow rate per square meter of effective filtration area)
 - x. Backflush process characteristics (frequency, mode, etc.)
- (3) Three consecutive, valid, replicate biological efficacy (BE) land-based tests meeting ETV challenge conditions shall be conducted on the BWMS with each alternate filter at each salinity for which the manufacturer is requesting type approval. These results shall be compared to the results of the BE tests conducted using the primary filter.
- (4) Operating and Maintenance (O&M) testing shall be conducted, in accordance with the ETV protocol, on the BWMS with all alternate filters. O&M testing shall consist of a minimum 50 hours.
- (5) Component testing, following the requirements of 46 CFR 162.060-30, shall be conducted on any electrical or electronic component of the alternate filters which has not already been subject to environmental testing.
- (6) Once complete, the IL shall evaluate the information obtained from the steps above to conclude equivalent performance of the alternate filters. The IL may add criteria as needed to evaluate overall equivalence and compatibility. The IL shall include the

results of the design study and all other associated testing, along with a recommendation for approval/disapproval of the alternate filters, with the final test report required by 46 CFR 162.060-34.

12.6 What does the Coast Guard require for approval of BWMS that are evaluated by scaling analysis in lieu of testing?

Due to the complexity of BWMS and the different methods employed to meet the discharge standard, the Coast Guard has determined that a standard procedure for scaling is not practical. Scaling of systems will be evaluated on a case-by-case basis taking into account the unique nature of each system. MSC will make final determination on the acceptance of testing and numerical modeling during its review of the type approval application.

Scaling of all tests (including mathematical and computational fluid dynamics modeling) must be clearly identified in the Experimental Design section of the Test Plan. The IL must ensure the test plan, including any scaling, meets the requirement for testing in 46 CFR 162.060. The manufacturer is responsible for completing the scaling study and submitting it to the IL for review. The IL is responsible for validating the assumptions, modeling, and quality of empirical data when evaluating the scaling study.

A scaling study should include a thorough review of system design, system performance, mathematical and computational fluid dynamics model components, justifications, and decisions, along with the results of both the land-based and shipboard testing. The numerical model must be calibrated to experimental data to validate the modeling method. If calibration shows the model does not represent experimental results, then the model must be updated to reduce fit error with the experimental data. Additionally, a sensitivity analysis must be supported with conclusions on numerical model accuracy and the impact of varying parameters between the models.

12.7 On what basis will the Coast Guard include hold time conditions on the type approval certificate?

The test plan must identify the operational requirements of the BWMS, which would include hold time limitations as presented in the manufacturer's performance claim. Hold time, along with all other operational parameters, are specified by the manufacturer. While regulations require test hold times of at least 24 hours, land-based and shipboard testing provide the flexibility of testing across a range of hold times. If hold time limitations are identified by the manufacturer or observed by the IL, the type approval certificate will include hold time as an operational limitation based on test results. If hold time is not identified by the manufacturer or IL as a limitation, then the test plan must incorporate a means to evaluate lesser hold times. The type approval certificate may be issued with hold time limitations as specified by the manufacturer or recommended by the IL.

12.8 Is it possible to type approve BWMSs with lower flow rates than the rates specified in the ETV Protocol? (For example, systems with 10-30 m³/hr flow rates)

Yes, if the smaller unit is part of a series, this could be addressed by 162.060-26(f). A smaller unit that is not part of a series could be tested at a lower rate, provided the IL can test at the lower rate, but in all other respects in accordance with 162.060. If the IL cannot test at the lower rate, the manufacturer may propose an alternative under 162.060-10(b)(1).

12.9 What does the Coast Guard mean by the term “novel” in 46 CFR 162.060-10(e)?

The Coast Guard’s objectives include promoting the development of innovative BWMS technologies that are practicable for shipboard use, rather than specifying which technologies should be developed into commercial products. However, some technologies may not have been previously evaluated for acceptability in treating water to remove or kill organisms, and hence may need to be evaluated in greater detail for the potential of their operations or discharges to impact ships, crew, or the marine environment. If you have specific questions about the potential use of novel processes, please contact MSC at msc@uscg.mil.

12.10 Can a containerized BWMS be used for shipboard type approval testing?

Containerized BWMS may be used during shipboard type approval testing. However, the containerized arrangement should be consistent with the configuration of its intended final use.

12.11 How much change is allowable in a type approved BWMS before additional testing and evaluation is required? For example, can the electronics be upgraded to reflect advances in technology without having to go through type approval testing again?

Any proposed change to a type approved BWMS must be reviewed by the Coast Guard prior to making the change. Changes are dealt with on a case-by-case basis. Equivalencies to established standards and justification supporting proposed changes must be provided in accordance with 46 CFR 162.060-16. Failure to secure Coast Guard review and acceptance of a change will void the type approval.

12.12 Will the Coast Guard issue certificates and type approval numbers for each unit of a type approved BWMS that is manufactured?

A single certificate may type approve multiple models, and covers all units of each model manufactured under the period of validity of the certificate. The certificates list can be found at [CGMIX](#). Copies of the type approval certificates are available online [here](#). Questions about the approval status of specific models or units should be directed to the manufacturer or MSC.

12.13 Will Coast Guard specify limits and conditions on the type approval certificate, and if so, how will these limits and conditions be determined by the Coast Guard?

Yes, applicable limits and conditions for a type approved BWMS will be specified on the type approval certificate. Limits and conditions are determined on a case-by-case basis during the approval process per §162.060-10(g). As an example, the Coast Guard has issued limits and conditions relative to salinity ranges, system volume, and whether or not a system is suitable for installation within a hazardous location.

12.14 What must be included in a proposal for an alternative examination, test, or evaluation under 46 CFR 162.060-10(b)(1)?

Every proposal for an alternative examination, test or evaluation must address the required elements described in the regulation. Each proposal must explain why the requirement is not practicable or applicable. It must also explain how the proposed examination, test, or evaluation is equivalent to the requirement. Finally, the proposal must fully describe the proposed method and contain full descriptions of the proposed alternative tests, including detailed instructions on how the method is performed. Even if a proposal is described elsewhere in this document as potentially acceptable if a 10(b)(1) request is submitted, it may be denied if it is not properly described and justified.

12.15 When a type approval certificate expires, what is the procedure for recertification?

The manufacturer must provide an official statement, on company letterhead, requesting renewal of the certificate, and attesting that the equipment remains in all material respects the same as the original. No IL involvement is necessary unless a change to the equipment is being made, in which case the procedures of 46 CFR 162.060-16 should also be followed.

12.16 What are the implications if a manufacturer goes bankrupt?

All equipment manufactured during the validity of the type approval certificate remains approved as long as it is manufactured, installed, and operated according to the terms of the type approval certificate. Any maintenance and repairs to this equipment must also be performed in accordance with the manuals and components specified as part of the type approval. If the equipment fails to operate and parts specified in the original bill of materials are no longer available, then the equipment is no longer operating under its type approval and must be replaced.

12.17 What happens when a manufacturer of type-approved equipment is purchased by another company?

If another company purchases a manufacturer and wants to retain type approval, the company must contact the Coast Guard to request that the certificate be updated to reflect the name and address of the new company. The certificate will be updated with a revision number, and the previous number issued to the original manufacturer will be marked "Former-May Use." This allows any equipment manufactured by the original manufacturer during the period of validity of the certificate to continue to be installed. Further, the new entity can continue to produce the system as long as it is designed and manufactured according to the terms of the type approval certificate. If the new entity intends to make changes to the design and/or manufacturing, then they must do so in accordance with the requirements for changes to approved systems in 46 CFR 162.060-16.

[13. 46 CFR 162.060-12 – Use and Acceptance of Existing Test Data](#)

13.1 Does Coast Guard have any guidance on acceptability of existing data?

Guidance on acceptability of existing data, beyond what is provided in 46 CFR 162.060-12, can be found [here](#).

14. 46 CFR 162.060-14 – Information Requirements for the Application

14.1 How does the Coast Guard define “marine portable tanks,” as discussed in §162.060-14(a)(5)?

Marine portable tanks are defined in 46 CFR Part 64.

14.2 Is there a standard format for the application package for type approval?

No, there is no prescribed format. Applications must meet the requirements of § 162.060-14. Note, however, that the Test Report and Operation, Maintenance, and Safety Manual (OMSM) must be formatted in accordance with § 162.060-34 and § 162.060-38, respectively. The BWMS application package may be submitted electronically to msc@uscg.mil. Emails larger than 10 MB cannot be accepted by the inbox, and should be sent via AMRDEC in accordance with the guidance found on [MSC's contact page](#).

The Coast Guard has developed a [BWMS Type Approval Review Checklist](#) as guidance to cross reference between the approval requirements of 46 CFR 162.060-10(f) and the required application documentation of 162.060-14. Although not required, experience has shown that providing the MSC checklist with column b completed may help facilitate and expedite the review of a type approval application.

15. 46 CFR 162.060-16 – Changes to an Approved System

15.1 Can parameter or component changes be made to an approved BWMS?

The manufacturer of a BWMS that is approved by the Coast Guard must notify MSC of any change in design or intended operational conditions, unless those changes are done in accordance with the OMSM. Changes requiring notification include deviations from the software code, hardware components, and design parameters as listed on the type approval certificate and associated OMSM. In accordance with 46 CFR 162.060-16(c), the Coast Guard may require additional testing and/or evaluations to be completed.

15.2 Can parameter or component changes be made during the testing phase prior to approval?

Generally, changes cannot be made once the test program has commenced. The manufacturer should first coordinate with the IL to determine the significance of the change and impacts on the

overall BWMS performance. MSC will review these requests on a case-by-case basis to determine if the test program needs to be restarted.

15.3 Is it permissible to change a manufacturer's performance claim during type approval testing? For example, a BWMS is designed for, and starts testing with, a UVT of 45%; after testing is underway, the manufacturer proposes to change the UVT limit to 50% and continue without restarting the test from the beginning.

Each proposed variance from the original/approved test parameters should be submitted to MSC for review. Only conservative changes are allowed. This means a limit may be changed during testing to make it more restrictive, but not more permissive. For example, any test that was run successfully at 45% UVT provides support for the claim that the system would be effective at 50% or higher. The opposite situation would not be true - an early test at 50%, under a claim of efficacy down to 50%, would not support a later mid-testing claim that the system would be effective at a lower UVT such as 45%. If an invalid test (for example, UVT during test was below the manufacturer's claim) provided some indication that the system would not be effective at conditions outside the claimed limits, these test results must be included in the test report, as they provide useful evidence to support the final system operating limits.

16. 46 CFR 162.060-20 – Design and Construction Requirements

16.1 What are the “recognized national or international standards” for BWMS design and construction criteria?

There are several options for conformance to recognized standards, which include:

- (1) Existing federal regulations found in 46 CFR Subchapters F and J (required if seeking approval for installation on U.S. flagged ships);
- (2) Rules of a Recognized Classification Society, as defined in 46 CFR Part 8; and
- (3) Appropriate application of a standard published from certain standards organizations (ANSI, ASME, ASTM, IEC, IEEE, ISO, NEC, NEMA, SAE, UL).

16.2 Will the Coast Guard type approve a BWMS intended for installation in hazardous locations, with electrical equipment certified with ATEX certification?

The BWMS may be approved for installation on foreign flagged vessels subject to approval from the vessel's Flag Administration. A BWMS may only be approved for installation on U. S. flagged vessels if the system complies with 46 CFR 111.105.

16.3 Does the Coast Guard have a policy on parts replacement and/or repair during type approval testing?

Yes. Replacement/repair is permitted during type approval testing, provided the replacement parts are identical. This means that the replacement part shall be from the same part supplier with the same part/model number as the original. Part replacement/repair must be conducted by the IL (land-based testing) or vessel crew (shipboard testing) in accordance with the OMSM. The replacement of parts can also be done by qualified service personnel, but this must be supervised by the IL. It is expected that the IL will make a determination on the validity of the test considering the break in the test process.

16.4 Can demonstrated performance onboard a ship be substituted for the inclination requirements of 46 CFR 162.060-20(a)(5)?

No. The IL must determine, through type approval testing observations and engineering analysis, that the system is able to perform at the listed angles of inclination.

16.5 In 162.060-20(b)(5), there is a requirement that the BWMS must have a monitoring and control system that is capable of storing data for six months. However, 162.060-20(b)(6) states that if the control and monitoring unit is replaced, actions must be taken to ensure data recorded prior to replacement is available for a period of 24 months. Is this an administrative error, or is there an expectation that monitoring systems retain data for 24 months?

The BWMS must have the capability to store data for six months. If the control and monitoring unit is replaced, the replacement must also store data for six months. The data from the replaced unit must be available (i.e., on board, available for inspection) for a period of 24 months after replacement. This data does not have to be stored in the control and monitoring unit; it can be a paper copy or an electronic file that can be accessed during an inspection, or copied to suitable media (e.g., CD) and provided to the Coast Guard.

17. 46 CFR 162.060-22 – Marking Requirements

17.1 Can a manufacturer who has received type approval for their BWMS mark systems that were previously installed on vessels prior to type approval?

The manufacturer may only mark systems that comply exactly with the type approval certificate and associated OMSM.

18. 46 CFR 162.060-24 – Test Plan Requirements

18.1 Does the Coast Guard require that land-based, shipboard, and component testing be accomplished in a specific order?

No, the Coast Guard does not require that these testing regimens be done in a specific order relative to each other. However, component testing must be conducted in the order specified by 46 CFR 162.060-30(a)(10).

18.2 *Do land-based, shipboard, and component testing all need to be conducted with the same individual treatment system?*

No, the test program may involve testing of multiple units to allow for simultaneous testing of the three phases. Shipboard testing may be conducted with a different model than land-based testing was conducted with. However, the same individual BWMS must be tested for all land-based test trials, because O&M testing must occur on one unit (i.e., not be distributed among units), in order to provide an evaluation of system robustness. It is the manufacturer's decision to test simultaneously, and it is up to the IL whether or not they wish to accommodate such an arrangement, as ILs and/or their subcontracted test facilities may encounter logistical difficulties both conducting and providing sufficient oversight of simultaneous testing at multiple locations.

18.3 *What operational parameters must be considered for type approval testing?*

The Coast Guard has not identified a set of specific parameters applicable to particular types of treatment technologies that must be addressed in the testing. The manufacturer must identify any operational parameters or design limitations (e.g., minimum UV transmittance or intensity, water temperature, etc.) for the proper operation of the system. These manufacturer claims will be taken into consideration by the IL during test plan development.

19. [46 CFR 162.060-26 – Land-Based Testing Requirements](#)

19.1 *What is treatment rated capacity (TRC)?*

The TRC is the range of flow rates the BWMS is approved to manage. The TRC does not guarantee that a BWMS will always deliver a particular flow rate of treated water. Actual flow rate of compliant water may be less under more challenging conditions.

19.2 *Is it allowable for tanks in land-based test to have internal structural members that might result in retention or incomplete drainage of sediments and treated organisms?*

ILs must validate that the design and operation of holding tanks minimize the number of organisms retained, and that the design and operation of holding tanks does not result in retention of organism numbers leading to incorrect test results.

19.3 *Can ILs use cultured (grown or raised under laboratory conditions) organisms to meet the required challenge condition levels of live organisms > 50 µm and >10 to <50 µm in size for land-based testing (ETV Reference 5.2.2)?*

Section 5.2.2 of the ETV Protocol specifies that ambient (naturally occurring at the test site) organisms will be used, and also specifies a minimum diversity of five species over three phyla/divisions. Organisms from this group may be cultured and used to augment abundances in the challenge water, but natural relative frequency distributions should be maintained. Similarly, collections of ambient organisms may be made and concentrated and used to increase concentrations to the necessary levels. In either case, the procedures must be validated to

demonstrate no adverse effects on organisms that would affect the ability of tests to characterize BWMS performance.

19.4 Does the Coast Guard require a minimum sample volume for determining concentrations of living organisms?

Section 5.4.6.3 of the ETV Protocol contains the relevant guidance on sample volumes required if sub sampling is performed. For example: if the entire concentrated sample is analyzed, then a whole water sample of 3-5 m³ may be sufficient provided there is documented validation that the entire concentrated sample was processed in a time that did not result in sample degradation, and that samples were analyzed with an acceptable level of accuracy and consistency. For assessment of accuracy and consistency, the Protocol recommends using micro-beads, and includes an example in appendix C. Theoretically, a sample volume of 1 m³ could be sufficient, but there would be little or no room for error and the validation would need to be very robust. The key issue for acceptability under IL evaluation is that the test facility has documented validation of the procedure used.

19.5 If a manufacturer has an option of using either granular or liquid active agent, would testing need to be completed separately for each, or could the land-based and shipboard testing be designed to evaluate both?

Each specific case must be evaluated by MSC. Key issues may include dose comparison, similarity of dosing equipment, and toxic effects of both substances, and other relevant factors.

19.6 The ETV Protocol specifies that O&M testing is conducted during land-based testing. Can O&M testing be conducted during shipboard testing instead of land-based testing?

Yes, O&M testing can be done during either land-based testing or shipboard testing. O&M testing of at least 50 hours as specified in ETV Protocol section 5.4.5 may be conducted either during land-based or shipboard testing. In either case, testing must meet the specifications in ETV Protocol section 5.4.9.

19.7 Does O&M testing need to be done for 10,000 m³ or 50 hours regardless of TRC?

O&M testing shall be conducted for a total of 50 hours. For a 200 m³/h system, this would equate to 10,000 m³ volume. For systems with greater TRC, the volumes would be greater.

19.8 For an active substance based BWMS, does O&M testing need to incorporate the use of treatment and neutralization chemicals (ETV Reference 5.4.5)?

Yes. O&M testing must include all relevant treatment and neutralization components of the system. If the test facility is restricted from discharging quantities of chemicals associated with the BWMS, then the Test/Quality Assurance Plan may be amended to operate the treatment system during O&M cycles either eliminating or reducing dosage of the active substances.

If a brine or saltwater source is required for operation when treating under some circumstances (e.g., when treating freshwater with a BWMS that includes electrolytic generation of ions), such

arrangements must also be used during testing, both for BE and for O&M testing. For flexibility, O&M testing can be conducted during shipboard tests.

19.9 Can BE tests be combined with other required testing (ETV reference 5.4)?

The ETV Protocol states that commissioning, BE testing, and O&M testing are distinct phases. A commissioning test may be used as the first BE test only if authorized to do so via a 10(b)(1) request.

19.10 Does the O&M operation need to be completed at each salinity for which the BWMS is to be type approved? (ETV Reference 5.4.5)

No, O&M testing is required for a total of 50 hours and may occur at one salinity or across several.

19.11 How should eggs and other immobile organisms/life stages in the greater than 50 μm class be considered during biological parameter analysis?

The ETV Protocol indicates that dead organisms are defined by a lack of visible movement during an observation time of at least ten seconds. Unmoving organisms may be living, so they are gently touched with the point of a probe to elicit movement and then monitored for at least ten seconds for visible movement. This standard covers mobile zooplankton, but does not include procedures for analyzing immobile organisms or organisms in immobile life stages.

Section 5.4.6.4 of the ETV Protocol is the only regulatory standard for enumerating organisms in the greater than 50 micron class. If ILs would like to use an analysis method different than the prescribed standard, then they may submit a request for approval of an alternative method in accordance with 46 CFR 162.060-10(b)(1). Note - the use of the most probable number method has been previously addressed by the Coast Guard. Documentation may be found [here](#).

19.12 What is the difference between a BE test cycle that is invalid and one that is unsuccessful?

The IL determines whether a land-based test cycle is valid by evaluating the test conditions against 46 CFR 162.060-26(c). If the source water does not comply with the challenge conditions specified in section 5.2 of the ETV Protocol, then the test should be considered invalid. Also, if the test set up did not operate as specified in the test plan (including the BWMS operational parameters and test facility operating procedures), then the test should be considered invalid.

It is possible for a test to be both invalid and unsuccessful. There is no need to evaluate samples from an invalid test for compliance with the discharge standard. However, if the results of a test cycle do not meet the discharge standard, then even if the test is found to be invalid, the test will be considered unsuccessful unless it can be shown that the failure to meet the discharge standard was not a failure of the BWMS to demonstrate biological efficacy.

If a BWMS failure occurs during a test cycle, but the IL is able to correct the condition in accordance with the OMSM, then the test may be considered valid. If the IL is not able to correct the condition, then further investigation must be carried out so the IL can make a determination of whether the scenario is just an invalid test cycle, or also an unsuccessful test because of BWMS failure.

19.13 Is there any allowance for the minimum required challenge conditions for land-based and shipboard testing (ETV Reference 5.2.1.4)?

Yes, the ETV Protocol allows for deviation from challenge water conditions. Test facilities may submit a 10(b)(1) requesting to consider a test valid if, despite the best efforts of the test facility staff, challenge conditions are within 10% of specified values found in 46 CFR 162.060 as well as the ETV Protocol. The IL must approve the deviation and provide a detailed explanation in the test report for why the required challenge conditions were not met, as well as why the deviation does not constitute a significant reduction in challenge conditions for the specific BWMS tested. Note - The variance is allowed for specific tests due to specific circumstances, not for a significant portion of the entire testing program.

19.14 The ETV Protocol does not specify allowable additives to be used to supplement dissolved organic material (DOM) or dissolved organic carbon (DOC) when natural water quality parameters cannot be met. What additives does the Coast Guard find acceptable for augmentation?

Section 5.2.1 of the ETV Protocol states, “Certain water quality conditions may interfere with the ability of some treatment processes. It is therefore critical to evaluate the effectiveness of a treatment system under water quality conditions that are challenging to the technology being tested.”

DOM in natural waters is known to affect the performance of treatment processes. Humic substances are usually the major component of DOM in natural waters, and are comprised of a complex mix of compounds with a high proportion of aromatic and aliphatic components. DOC in natural waters has been shown to significantly affect the production of disinfection byproducts, the rate of oxidant decay, and UV transmission.

Neither the ETV protocol nor the text of 46 CFR 162.060 specifies substances that should or should not be used for DOC augmentation. The ETV protocol states: “DOM can be very difficult to adjust or augment if the natural waters have insufficient content. There has been some success using *Camellia sinensis* (decaffeinated iced tea) to augment natural DOM content.”

Because the version of the ETV protocol currently incorporated into regulation is not specific, issues concerning augmentation are reviewed on a case-by-case basis, taking into account the basic premise of the Protocol (“that ballast water treatment systems are designed to function effectively in the full range of water quality characteristics that will be encountered under shipboard operational conditions”) and the emphasis throughout the protocol on validation of test procedures and methods. It is expected that ILs will ensure substances used to augment DOC will provide for tests that evaluate the ability of the tested systems to perform effectively when

used in natural waters. In the event augmentation of water quality parameters is necessary, the basis for selection of augmented substances must be fully explained, including the appropriateness of the particular substance(s) given current understanding of the effects of natural water quality conditions on the specific treatment processes comprising the BWMS. This validation should include the effects of the additive with regard to total residual oxidant consumption, UV absorption, or other technology specific parameters, in addition to comparison with ambient DOM and DOC compositions.

ILs conducting tests of BWMSs are encouraged to share information on substances used to augment water quality conditions, including the scientific (rationale for use in mimicking natural water quality conditions) and technical (practicability of use during testing, including adverse effects on organisms and any issues related to preparation/injection) bases for selecting particular substances.

19.15 Can ILs manipulate ambient conditions with brine or freshwater to achieve the three salinity regimes required for land-based testing (ETV Reference 5.2.1.1)?

Land-based verification testing in fresh, brackish, and marine salinity challenge water is intended to evaluate both the performance of BWMS under different salinities, but more importantly, to test BWMS efficacy with diverse biological communities found in those different natural environments. If a single source of challenge water is used for more than one salinity range, then it may be necessary to augment with freshwater or brine to achieve the necessary salinity conditions. This augmentation must be validated to demonstrate no adverse effects on biota. Further, the biota should be appropriate for the salinity regime. Thus, there must be naturally occurring brackish water organisms during brackish water tests and naturally occurring marine organisms during marine salinity tests (ETV 5.2.2). There may be a mix of biota at all times, but this needs to be validated. Such a validation may include comparison of challenge water organisms with biota in nearby areas characterized by salinity conditions within the specified ranges.

20. [46 CFR 162.060-28 – Shipboard Testing Requirements](#)

20.1 Is it allowable to conduct more than one test run at the same geographic location during the same time period during shipboard testing?

No, multiple tests at the same geographic location during the same time period are not allowed during shipboard testing (i.e., two or more tests run simultaneously or immediately sequential, with treated water held in separate tanks.) The intent of shipboard testing is the evaluation of the ability of a BWMS to effectively treat ballast water to meet the ballast water discharge standard under a range of conditions encountered over a range of locations and times. At least 24 hours should elapse between tests at one location.

20.2 Do vessels have to be in the STEP program to be involved in shipboard testing for type approval?

No. A vessel used in testing a BWMS for type approval does not have to be enrolled in STEP if the vessel does not discharge treated water in U.S. waters, or if the manufacturer has AMS approval for the BWMS being tested. If a vessel discharges treated water in U.S. waters and the BWMS is not an AMS, the vessel must be enrolled in STEP. The STEP application and acceptance process has been streamlined for ships involved in testing for U.S. type approval and can be included into the IL testing process. For more information about applying for STEP acceptance during shipboard testing, contact environmental_standards@uscg.mil.

20.3 Can all shipboard testing be carried out at a single port, at different times, over the six month period?

No, 46 CFR 162.060-28(e)(2) requires that shipboard testing be conducted across a range of geographic variability. Testing in at least two separate [Large Marine Ecosystems](#) is considered evidence of acceptable geographic variability.

20.4 Can a shipboard test run occur entirely at one location by taking on, treating, and sampling ballast water while in port, holding that ballast water for 1 to 4 days during cargo operations, and discharging and sampling the treated ballast water in the same port prior to departing on its next voyage?

Yes. Taking up and discharging in one port location without intervening transit is allowed. The IL must develop test plans that evaluate manufacturer claims, including the necessity for, or lack thereof, of specific minimum hold times.

20.5 Are there any alternatives to conducting whole effluent toxicity (WET) tests during shipboard testing?

Yes, the Coast Guard will consider requests made under 46 CFR 162.060-10(b)(1) to conduct WET testing during land-based testing, with a test at each salinity for which the BWMS is being type approved. These requests must provide reasons why the WET tests are impracticable during shipboard testing.

Title 46 CFR 162.060-28(g)(4)(v) requires the use of a WET testing methodology in accordance with the requirements of the December 2008 Environmental Protection Agency Vessel General Permit. The Coast Guard will also consider requests made under 46 CFR 162.060-10(b)(1) to use a WET testing methodology based on the Organization for Economic Co-operation and Development and/or International Organization for Standardization standards instead. As with conducting WET testing during land-based testing, such requests must demonstrate inapplicability or impracticability.

20.6 In the case where a BWMS is designed to use brine or sea water (SW) from a tank to augment the salinity of water used to generate hypochlorite, can the shipboard testing be designed to evaluate the BWMS when operated both with and without the brine/SW tank?

In the example case, the brine/SW tank would have to be used during the freshwater land-based tests and on any shipboard tests conducted in freshwater. The BWMS must demonstrate its

capability to consistently switch to the appropriate source (feed tank or ballast water being treated) and deliver the necessary stream of SW or brine to the generator. This could be achieved during either land-based or shipboard tests.

20.7 Do five valid shipboard trials have to be completed for each salinity for which a BWMS is to be type approved? If not, are there a minimum number of valid trials that must be completed at a given salinity?

Five consecutive valid and successful trials are not required at each salinity during shipboard testing. A total of five such trials are required over a minimum six month period. Under 46 CFR 162.060-28(e)(2), the circumstances of the vessel's operation during the period of shipboard testing must provide an acceptable range of geographic and seasonal variability.

20.8 If shipboard testing is conducted using a containerized BWMS, will the type approval certificate limit the installation of a BWMS to containerized arrangements?

The OMSM should identify the installation locations. During BWMS assessment, the IL should evaluate the installation for shipboard test to determine if location and configuration are consistent with its final intended use on operating vessels, as described in the OMSM.

20.9 Does the Coast Guard follow the guidance in IMO BWM circular 33 from August 2011, which allows testing on scaled units to be performed as shipboard testing with a shorter time requirement of three months?

No, IMO BWM circular 33 does not apply to U.S. type approval testing.

20.10 Can shipboard testing be performed on multiple vessels?

Multiple units on different ships may not be used for shipboard testing. One unit must be used for all testing over the shipboard test period.

20.11 The EPA's VGP WET tests, incorporated by reference in 46 CFR 162.060-28(g)(4)(v), identify measured toxicity values 1.6 TU_c or greater (daily maximum) as an issue of concern. Does this mean that if a BWMS exceeds 1.6 TU_c during type approval WET testing that the test cycle would be determined to be a failure?

A Chronic Toxicity Unit (TU_c) greater than 1.6 is not a pass/fail criterion for U.S. type approval. Such a measurement must be reported in the Test Report, and the IL should evaluate the source of the measured toxicity. In addition, the IL should confirm that all residuals meet the limits of VGP 2013 which specifies the limits for organic substances. The Coast Guard may include a notation regarding the toxicity measurements on the type approval certificate.

WET testing was removed from VGP 2013, but there are still effluent limits for biocides. The regulations require WET testing in accordance with VGP 2008, and the test results must correspond to current environmental standards to ensure discharges are not persistent, bioaccumulative, or toxic. The EPA currently includes a process of determining the need for

water quality based on effluent limitations known as reasonable potential. Discharge scenarios generally account for dilution, which is different than the non-mixing framework of VGP 2008. EPA and many states have established a baseline standard dilution ratio for these scenarios of 10% effluent, which equates to a 10-fold dilution that corresponds to a TU_c value of 10 for the purposes of comparison with WET testing results.

Compliance with 46 CFR 162.060-34(a)(4)(iii) is considered to be achieved if the BWMS discharge meets the limits set forth in Table 3 of VGP 2013. Coast Guard considers TU_c measurements from type approval WET testing up to 10 to be acceptable. In cases where the $TU_c > 10$, additional analysis should be carried out to identify the source of the toxicity and measures the manufacturer needs to take to reduce the potential for higher toxicities during operation. Additionally, the treatment chemical must be Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) registered or be subject to risk evaluation in accordance with 46 CFR 162.060-32.

20.12 Is WET testing required during BWMS commissioning on a BWMS using technologies that are not active substance based, such as UV, deoxygenation, and ozone?

The Coast Guard does not consider UV and deoxygenation treatment to involve the use of an active substance, and those technologies are therefore not subject to WET testing requirements referenced in 46 CFR 162.060-28(g)(4)(v). Ozone treatment may result in toxic substance residuals that need to be evaluated against the VGP standards.

20.13 Can a manufacturer conduct two shipboard tests instead of the full five if the manufacturer conducted three shipboard tests for IMO?

Yes, but only if it is the same unit tested on the same ship, no system modification or upgrades have been made in the interim, all maintenance and repair is documented, and the required consecutive, valid test sequence is achieved. The purpose of shipboard testing is to demonstrate that the system as designed and constructed can operate effectively over a period of time under shipboard conditions. The three IMO tests must have been completed under the supervision of the IL (see 46 CFR 162.060-12).

20.14 46 CFR 162.060-28(d) requires that during shipboard tests, the BWMS must be installed and operated in the vessel in a location and configuration consistent with its intended use on operating vessels. Does this mean every configuration of modular BWMS (i.e., systems comprised of multiple treatment modules such as UV, Filter, chemical doser, etc.) must be tested separately?

Location and configuration of a BWMS for shipboard testing for type approval must be consistent with the configuration of its intended final use.

20.15 Does equipment that is installed in a vessel's pump room need to be classed as zone 0?

To the extent practicable, BWMS equipment should be installed in a nonhazardous, or the least hazardous location possible. If the BWMS equipment is installed within a hazardous location, the equipment must meet the corresponding requirements for the intended location.

21. 46 CFR 162.060-28(k) – Shipboard Technology Evaluation Program

21.1 How will the Shipboard Technology Evaluation Program (STEP) be affected by the type approval of BWMSs that meet the ballast water discharge standard?

The STEP for experimental BWMSs will continue as currently described in [NVIC 01-04](#). STEP acceptance will also be conferred to vessels engaged in shipboard testing of BWMS in waters of the U.S. for the purposes of type approval, under the oversight of an accepted IL in accordance with 46 CFR 162.060, to allow such vessels to discharge treated ballast water. Vessel owners engaged in testing BWMS for purposes of type approval must contact the Coast Guard and arrange for enrollment of such ships in STEP before discharging water treated by BWMSs undergoing type approval testing in U.S. waters. Once a BWMS has been type approved, the vessel on which it was tested may use the system as a type approved system, and the vessel will be dropped from STEP. If the BWMS is not granted type approval due to its R&D status, the vessel may transition to the STEP for experimental systems if the vessel owner and BWMS manufacturer will continue to test the system during shipboard operations.

21.2 For vessels enrolled in STEP, is there an option to transition to AMS?

STEP and AMS are not related. If a vessel in STEP has a BWMS that is accepted as an AMS, that vessel's owner may decide to withdraw from STEP and meet its BWM requirements under the AMS provision in 33 CFR 151.1510 or 151.2025. If the vessel owner decides to make this change, then the five-year limitation period for use of AMS applies.

21.3 In the event a BWMS is installed on a vessel for purposes of type approval testing, and the ship is enrolled in STEP, will the option for grandfathering in the case of BWMS which do not pass type approval testing be allowed, and if so, for how long?

There is no “grandfather option” in the case where a BWMS does not pass the Coast Guard type approval process. If accepted into the STEP for experimental purposes, the BWMS is considered to meet the requirements of subsequent ballast water discharge standard regulations for ten years or the life of the BWMS, whichever comes first. If accepted into the STEP for purposes of type approval testing, the vessel may use the BWMS for the duration of the testing. If the BWMS is not granted type approval, the BWMS may not be used to meet the ballast water discharge standard.

21.4 Given that different entities will enroll in STEP for different reasons (i.e., experimental evaluation of R&D prototype, testing for type approval) will the Coast Guard prioritize applicants based on their purpose for applying to STEP?

STEP applications for R&D and STEP applications for type approval testing are handled separately. R&D-related applications will continue to be evaluated by the Coast Guard Environmental Standards Division (CG-OES-3).

22. 46 CFR 162.060-30 – Testing Requirements for BWMS Components

22.1 Are there alternate testing requirements for components that are too large for test labs?

The IL should evaluate whether testing of sub-components that make up the component can be done. Test results may be combined with analysis of structure/means of attachment to/within the overall component. If this is not practicable, then a 10(b)(1) request should be submitted for the system detailing the alternate testing or modeling that will be performed to evaluate suitability for long term shipboard operation.

22.2 Is IACS UR E10 an equivalent testing standard to 162.060-30?

Testing may be conducted in accordance with International Association of Classification Societies (IACS) Test Specification for Type Approval (UR E10). Certification to UR E10 will be accepted in lieu of component testing, without a 10(b)(1) being required, for common marine equipment.

The common marine equipment provision does not apply to components installed in a control/monitoring panel. In accordance with 46 CFR 162.060-30(a), panels must be tested in their standard production configuration, which includes all subcomponents, whether or not they are type approved.

Class society testing standards generally do not require testing of motors and motor controllers rated at less than 100 kW. For equipment like this for which the component testing requirements are applicable, some other form of evidence must be provided which demonstrates that the equipment was tested to an equivalent standard, accompanied by a 10(b)(1) request. If no other documentation is available, then the equipment must be tested using the requirements of 46 CFR 162.060-30.

22.3 Are UV reactors and EC chambers required to undergo component testing?

The entire chamber may not need to undergo component/environmental testing if it is possible to remove and test all attached electrical devices (e.g., sensors and controllers) from the UV reactor/EC chamber.

22.4 For a UV based system, does the component testing of the UV system include the UV lamps?

Yes, UV lamps are considered to be electrical/electronic components.

22.5 *Can demonstrated performance aboard a ship be substituted for the component inclination testing?*

Performance onboard ship does not substitute for component inclination testing. However, there is no requirement that an actual inclination test be performed during shipboard testing. Rather, BWMS components must “be designed to operate” at the vessel inclinations specified, and the IL shall evaluate the BWMS design to ensure this requirement is met.

22.6 *Do components (e.g. UV chambers, electrolytic cells, ozone generators etc.) need to be in operation during component inclination testing in accordance with -30(a)(9)?*

No. There is no requirement that an inclination test be performed. The IL shall evaluate the BWMS to determine if the components will be affected by the specified inclinations. The Test Report should include an explanation for the IL’s conclusion.

22.7 *Can a test facility be approved by the Coast Guard for conducting only the environmental tests of electrical/electronic components in accordance with 46 CFR 162.060-30, without doing so under the supervision of an IL?*

No. Under the type approval requirements in 46 CFR 162.060, all testing and evaluation of a BWMS must be conducted by an IL. The IL can use approved sub-labs, but such sub-labs must be identified in the application for approval as an IL, or in a subsequent application by the IL for approval of additional sub-labs. The Coast Guard does not approve test facilities or labs for conducting only portions of the required testing identified in 46 CFR 162.060. A test facility may be an accepted sub-lab for more than one IL.

22.8 *Is there any testing allowance for components that exhibit many major resonant frequencies? Is sweeping of resonant frequency ranges acceptable in lieu of testing at each frequency?*

Major resonant frequency is not defined in the regulations. 46 CFR 162.060-30(a)(3) applies to resonance frequencies found between 2 Hz and 80 Hz. If multiple major resonant frequencies are observed between 2 Hz and 80 Hz, the component should be vibrated at the major resonant frequency of greatest magnitude in each plane for four hours. If no major resonant frequencies are discovered between 2 Hz and 80 Hz in any plane, the component shall instead be vibrated in that plane at 30 Hz for four hours.

23. 46 CFR 162.060-32 – Active Substances

23.1 *Is it permissible to use a Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) report in order to satisfy the requirements of 46 CFR 162.060-32(b)?*

According to 46 CFR 162.060-34 (g)(1), the IL’s test report must include an appendix that has documentation regarding FIFRA requirements, and for all other active substances or preparations, documentation of the assessment specified in 46 CFR 162.060-32(b). A GESAMP

report under regulation D-3 of the IMO BWM Convention may be acceptable to satisfy the requirements of -32(b), provided the included data is acceptable to the Coast Guard in accordance with -12 “Use and acceptance of existing test data.” For questions regarding the applicability of FIFRA, the Coast Guard recommends that BWMS manufacturers contact the EPA’s [Office of Pesticide Programs, Antimicrobial Division](#).

23.2 Does the Coast Guard consider UV systems with filtration to involve the use of active substances?

No, the Coast Guard does not consider UV systems with filtration to be systems that involve the use of active substances.

23.3 What if the salinities at test locations do not exactly match the salinity ranges of the ETV protocol for low- and high-salinity waters?

Coast Guard regulations require that type approval testing include testing in the salinity ranges (i.e., fresh (<1 PSU), brackish (10-20 PSU), and marine (28-36 PSU)) for which the system is to be approved. It is incumbent on the IL to ensure testing conditions meet the Coast Guard requirements. If the IL proposes to test with alternative salinity ranges, a request may be submitted in accordance with 46 CFR 162.060-10(b)(1) that analyzes the effect of salinity on the BWMS and the observed organism populations in the proposed ranges.

24. 46 CFR 162.060-42 – Responsibilities for Independent Laboratories

24.1 Does the Coast Guard publish a list of accepted Independent Laboratories (ILs)?

A list of Coast Guard accepted ILs can be found on the Coast Guard Maritime Information Exchange at <http://cgmix.uscg.mil> or <http://cgmix.uscg.mil/EQLabs/EQLabsSearch.aspx>. In the “Approval Series Name” block and in the drop down list, select “Ballast Water Management Systems,” then hit the “Search” button.

24.2 Does the Coast Guard have a framework or checklist for evaluating test facilities when reviewing IL applications?

Yes, the Coast Guard uses the IL checklist located [here](#).

24.3 Is it permissible to conduct type approval tests at a test facility under IL review?

The Coast Guard cannot authorize, or otherwise indicate in advance, that any testing by an organization that is not a Coast Guard accepted IL at the time of testing will be acceptable. If a BWMS is undergoing tests when the test organization is under review for acceptance as an IL, the Coast Guard will consider the test results to have been produced by an IL if the test organization is eventually accepted as an IL or a sub-lab to an IL.

24.4 May an IL accept test results from a sub-lab that is approved under another IL?

Yes, an IL may consider test data carried out under the responsibility of another IL. The manufacturer should seek acceptance prior to initiating tests with another sub-lab, as the IL may not accept the test report if it does not comply with the IL's QA requirements and/or testing regulations. The IL must be able to conclude and attest that the tests carried out by the other IL were fully compliant with all relevant requirements in 46 CFR 162.060.