

Type Approval: Frequently Asked Questions

Acronym list:

AMS – Alternate Management System
BE- Biological Efficacy
BW- Ballast Water
BWDS- Ballast Water Discharge Standard
BWMS- Ballast Water Management System
CFD – Computational Fluid Dynamics
CFR – Code of Federal Regulations
ENG – Office of Design and Engineering Standards
ETV – Environmental Technology Verification
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act
FW- Fresh Water
GESAMP – Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
IL – Independent Laboratory
IMO – International Maritime Organization
ISO – International Organization for Standardization
LB – Land Based
LOI - Letter Of Intent
MFR – Manufacturer
MSC – Marine Safety Center
O&M – Operation and Maintenance
OES – Office of Environmental Standards
SB – Shipboard
STEP – Shipboard Technology Evaluation Program
TA – Type Approval
TRO – Total Residual Oxidant
TUc – Chronic Toxicity Units
TRC – Treatment Rated Capacity
USCG – United States Coast Guard
UV – Ultraviolet
UVT – UV Transmittance
VGP – Vessel General Permit
WET – Whole Effluent Toxicity

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§ 162.060-10 APPROVAL PROCEDURES

1. Can an MFR submit testing proposals or requests for alternatives with the LOI?

No, the LOI is not a mechanism to put forward questions or raise issues regarding testing, rather it is to notify the USCG that testing is planned. The 30 day notice on an LOI gives the USCG an opportunity to plan a visit to the testing facility, if desired. Questions or issues regarding testing must be submitted to the USCG well in advance of an LOI. A MFR must submit requests for approval of alternatives to Commanding Officer, Marine Safety Center, in accordance with § 162.060-10(b)(1).

2. Could a MFR apply to more than one IL and submit a BWMS for testing to each? How would the USCG address this?

Our regulations do not limit a MFR to one IL. It is safe to assume that differences in processes/procedures exist among ILs. However, the Coast Guard relies on and expects that accepted ILs will evaluate, inspect and test BWMS according to our requirements.

3. What documentation is required to establish a third party consultant as the point of contact for a MFR?

There is no set format. A letter from the MFR to Commanding Officer, Marine Safety Center, identifying a specific person as the designated point of contact for the MFR regarding the type approval application would suffice. The designated point of contact must be identified in the LOI specified in 46 CFR 162.060-10(a)(1).

4. Can a MFR conduct 2 SB tests instead of the full 5 if the MFR conducted 3 SB tests for IMO?

Yes, under this set of circumstances: same unit tested, same ship, no system modification or upgrades in the interim, documented maintenance and repair, the required consecutive, valid test sequence is achieved. The purpose of SB testing is to demonstrate that the system as designed and constructed can operate effectively over a period of time.

5. What is the procedure for USCG acceptance of alternate filters?

We have developed a standard procedure for testing alternate filters which consists of the following steps:

A. The manufacturer conducts a full suite of testing, in accordance with 46 CFR 162.060, on the BWMS system with a primary filter of their choosing.

B. A design study must be completed to assess the similarities between the primary filter and all alternate filters proposed. The Independent Laboratory (IL) will review the information provided to assess equivalence to the original filter and compatibility with the overall BWMS. This design study shall include comparisons of the following:

- 1) General arrangement of the system and filter interface.
- 2) Filter mesh type, rating, material, and design specification (ASME, ISO, etc.)
- 3) Rated minimum and maximum filter flow of each filter as identified by the vendor
- 4) Minimum and maximum filter operating pressures of each filter
- 5) Differential pressure of the clean filter at maximum flow rate
- 6) Differential pressure set point to initiate the cleaning/back flush cycle
- 7) Filter flow characteristics which note the effects of cleaning cycles on throughput and any other unique characteristics of the component
- 8) Effective filtration area
- 9) Filtration velocity (Flow rate per square meter of effective filtration area)

C. Three sequential, replicate biological efficacy (BE) land-based tests meeting ETV challenge densities shall be conducted, 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.

D. 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.

E. 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.

F. Once complete, the IL shall evaluate the information obtained from the steps above to determine the overall suitability 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.

Please follow the steps above in order to have your alternate filter assessed for acceptability for use as an alternate filter with your BWMS.

§ 162.060-12 USE AND ACCEPTANCE OF EXISTING TEST DATA

1. Does CG 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 under the environmental tab on the USCG Home Port Web Page. <https://homeport.uscg.mil/mycg/portal/ep/home.do>.

§ 162.060-14 INFORMATION REQUIREMENTS FOR THE BWMS APPLICATION

1. How does the USCG define marine portable tanks as referenced in §162.060-14(A)(5)?

Marine Portable Tanks are defined in 46 CFR Part 64.

§ 162.060-16 CHANGES TO AN APPROVED BWMS

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

Changes may not be made to the design or operational conditions unless they are done in accordance with the Operation, Maintenance, and Safety Manual (OMSM). These changes include deviations from the software/ 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.

§ 162.060-20 DESIGN AND CONSTRUCTION REQUIREMENTS

1. For a BWMS, what are the applicable design, construction and safety standards for marine engineering and electrical engineering equipment as referenced in §162.060-20(a)(4)?

The USCG will evaluate the design, construction and safety standards against the USCG standards of 46 CFR Subchapters F for marine engineering equipment and J for electrical engineering equipment. If a BWMS meets these requirements, the US type approval certificate will state suitability for installation on a US flag vessel. If a BWMS does not comply with these USCG standards but meets a recognized national or international standard for such equipment, the BWMS could receive a US type approval certificate. However, the type approval certificate will state that the BWMS is not suitable for

installation onboard a U.S. flag vessel. Further information can be found in the attached Policy Letter in Appendix A.

2. If a MFR offers an explosion proof option, does component testing need to be completed on it, or will it be addressed as a design modification?

This issue will be addressed on a case-by-case basis with due consideration of the specific circumstances.

3. Will the USCG type approve a BWMS, intended for installation in hazardous locations, with electrical equipment certified with ATEX certification?

It is not the Coast Guard's intent to require a BWMS fitted in a hazardous location on foreign flag vessels to comply with 46 CFR 111.105. The vessel's flag administration will make such determinations. The Coast Guard may type approve a BWMS intended to be fitted in hazardous locations and configured with equipment certified to the EU ATEX Directive 94/9/EC. Under these circumstances, such installations would not be permitted in hazardous locations on U.S. flag vessels. A type approval certificate issued under § 162.060-10(g) should be noted accordingly.

4. Does the CG have a policy on parts replacement and/or repair during type approval testing?

Yes, it is permitted to replace parts or conduct repairs during type approval testing provided the replacement parts are identical. This means the replacement part shall be from the same MFR with the same part/model number as the original. Parts replacement and/or repairs will be conducted by the IL (land based testing) or vessel crew (shipboard testing) per the MFR's OMSM, and all such replacements will be fully explained in the Test Report. The replacement of parts can also be done by a 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.

5. Can demonstrated performance onboard a ship be substituted for the inclination requirements of -20(a)(5)?

No, demonstrated performance onboard a ship does not substitute for the inclination requirements of -20(a)(5). To clarify: -20 does not contain explicit test requirements – it simply states a BWMS must be designed and constructed to operate under the stated inclination conditions. Some combination of well documented desk-top evaluations including computational analyses could serve to meet this requirement.

§ 162.060-24 TEST PLAN REQUIREMENTS

1. Does the USCG require that LB, SB and component testing be accomplished in a specific order?

No, the USCG does not require that testing is done in some specific sequence.

2. Is it permissible to conduct TA testing on a BWMS using multiple yet identical units, of the same model, for different test functions? For example, is it permissible to conduct land based testing and component testing using multiple yet identical units of the same model?

Yes, it is permissible to conduct BWMS TA testing using multiple yet identical units, of the same model, for different test functions. For example, land based testing could occur simultaneously with component testing and/or shipboard testing, etc.

With regard to simultaneous testing:

1. O&M testing must occur on one unit (i.e., not be distributed among units), providing an evaluation of system robustness.
2. The IL and/or the ILs subcontracted test facilities would be responsible for ensuring that testing is carried out on identical units (i.e., built to same design and standards of construction) of the same model.
3. It would be a MFR's choice to test simultaneously, and an IL's discretion to accommodate such an arrangement. ILs and/or their subcontracted test facilities may encounter difficulties both conducting and providing sufficient oversight of simultaneous testing at multiple locations.

3. Is it permissible to change a MFR's performance claim during type approval testing? For example, a BWMS is designed for, and starts testing with, a UVT of 45%; after testing begins; the MFR decides to change the UVT limit to 50% and wants to continue testing without having to start testing from the beginning.

Only conservative changes are allowed. This means that a limit may be changed during testing to make it more restrictive, but not more permissive. In the example, any test that was run successfully at 45% 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%. It is not permissible to negate a failed test by changing the MFR claimed limit after the failed test. If an invalid test (for example, UVT during test was below the MFR claim) provided some indication that the system would not be effective at conditions outside the claimed limits, these tests must be included in the test report, as they provide useful evidence to support the final limits. It's only permissible to make the MFR limit less restrictive if all tests were conducted under conditions that exceeded the claimed limit.

4. On what basis will the Coast Guard determine the necessity to include hold time conditions on the type approval certificate?

The MFR must identify hold time necessary for effective performance and the IL must test these claims. LB and SB testing provide the flexibility of testing across a range of hold times.

§162.060-26 LAND-BASED TESTING REQUIREMENTS

1. What is TRC?

The TRC is the range of incoming 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 delivery of compliant water may be less under more challenging conditions.

2. Is it allowable for tanks in LB test facilities to have internal structural members that might result in retention of sediments and treated organisms?

ILs must validate that the design and operation of holding tanks does not result in retention of significant numbers of organisms.

3. Is it allowable to use tanks that aren't completely drained which might result in the retention of water and treated organisms? (new item)

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

4. Can ILs manipulate ambient conditions with brine or freshwater to achieve the three salinity regimes required for LB testing? (ETV Reference 5.2.1.1)

LB 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 FW 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 Reference 5.2.2). There may be a mix of biota at all times, but this needs to be validated. Such a validation could include comparison of challenge water organisms with biota in nearby areas characterized by salinity conditions within the specified ranges.

5. 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?

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 5 species over 3 phyla/divisions. Organisms from this group could be cultured and used to augment abundances in the challenge water, but natural relative frequency distributions should be maintained. Similarly, collections of ambient organisms could 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.

6. Does the USCG 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. If the entire concentrated sample of treated water is analyzed, then a whole water sample of 3-5 m³ would likely be sufficient providing there was documented validation that the entire concentrated sample could be processed in a time that did not result in sample degradation, and that samples could be 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 as an IL is that the test facility has documented validation of the procedure used.

7. If a MFR has an option of using either granular or liquid active agent, would testing need to be completed separately for each, or could the LB and SB testing be designed to evaluate both?

Each specific case will need to be evaluated by the MSC. Key issues will likely include whether doses are the same, key pieces of the equipment are different, formulations have different toxic effects, etc.

8. Would the type approval certificates include stipulation of the salinity conditions encountered during testing, or will it indicate acceptance for low- and high-salinity operation?

Type approval certificates may include conditions, as appropriate given the design, construction, operation and demonstrated performance of the BWMS. *A priori* identification of exact wordings for all possible conditions is not possible. Type approval certificates will indicate any salinity conditions for which the system is approved (e.g., “approved for treatment of water with salinity greater than or equal to X PSU”).

9. Is there a "generic" list of operational parameters that a BWMS must be tested against during 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 ETV protocol has a section on challenge conditions that identifies water quality, organism, and flow/volume requirements. Further, the MFR must identify any design limitations (e.g., minimum UV transmittance or intensity, water temperature, etc) for the operation of the

system. These MFR claims will be taken into consideration by the IL when the test plan is developed.

10. How will the USCG approach scaling of BWMS systems?

Due to the complexity of the various BWMS systems and their approach to meeting the discharge standards, the USCG has determined that a standard procedure for scaling is not practical. Scaling of systems will be handled on a case-by-case basis taking into account the unique nature of each system.

Manufacturers wishing to scale their systems should ensure they provide documentation which adequately details the methods used to predict performance of those systems which will not be physically tested. This documentation should include validation of the modeling or calculations by the tested system. As an example, a manufacturer successfully tests a 300 m³/h system during land based tests and contends that modeling predicts the same successful outcome for all models with flow rates from 100 m³/h to 3000 m³/h. At a minimum, the CG would expect to see a comparison of the modeling results for a system with a flow rate between 300 m³/h and 3000 m³/h (the higher the better) and actual test results to better determine the accuracy of the model.

11. Is the installation of two or more independent BWMS, operating in parallel, a type approval question?

No. Independently operating type approved BWMS used in parallel could be used to increase ballast water flow and is an issue addressed during plan review process for installation of the systems. Each BWMS would be independently controlled and monitored.

12. Is it possible to type approve BWMS 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 an IL can test at the lower rate, but in all other respects in accordance with 162.060. If no IL can test at the lower rate, the MFR could propose an alternative under 162.060-10(b)(1).

13. Will the 5-day hold time during land-based testing, in accordance with G8, also be in accordance with USCG requirement that hold-time during land-based testing be at least 24 hours (1 day)? (ETV Reference 5.4.5)

Yes, but the ETV Protocol in addition to requiring a minimum hold time of 24 hours, also requires that specific MFR claims regarding system limitations be tested. Thus, longer hold times may be required if such are necessary given the treatment process.

14. Is WET testing required during BWMS commissioning on a BWMS using UV and filtration?

The Coast Guard doesn't consider UV treatment to involve the use of an active substance, and is therefore not subject to WET testing requirements referenced in 162.060-28(g)(4)(v).

15. Does the 50 hours of O&M operation need to be on the same BWMS, or could the testing be completed on multiple systems combined to provide 50 hours?

O&M testing must occur on one unit (i.e., not be distributed among units), providing an evaluation of system robustness.

16. 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 must meet the specifications in the ETV Protocol section 5.4.9.

17. 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/hr system, this would equate to 10,000 m³ volume. For systems with greater TRC, the volumes would be greater.

18. Does an electro-chlorination system need to operate with salt water or a brine tank (fresh water) during the O&M testing? If so, the neutralization system would need to be operated and possibly require retention of water to verify neutralization. (ETV Reference 5.4.5)

O&M testing must include all relevant treatment and neutralization components of the system. 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 biological efficacy and for O&M testing. For flexibility, O&M testing can be conducted during shipboard tests.

19. Can BE tests count toward O&M testing (ETV reference 5.4.5)?

No, O&M testing is in addition to BE testing.

20. 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.

§ 162.060-28 SHIPBOARD TESTING REQUIREMENTS

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 is not allowed during shipboard testing. (e.g. two or more tests run simultaneously or immediately sequential, with treated water held in separate tanks). At least 24 hours should elapse between tests at one location, and tests should occur over a range of geographic and seasonal conditions during the 6 month period of required shipboard testing. A key intent of shipboard testing is the evaluation of the ability of a BWMS to effectively treat ballast water to meet the discharge standard under a range of conditions encountered over a range of locations and times. Running tests during the same time period and in the same geographic location would reduce the variability in location and time over the six-month period of shipboard testing.

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

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 US waters, or if the MFR has AMS acceptance 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 easily included into the IL testing process.

3. Can all shipboard testing be carried out at a single port, at different times, over the 6 month period?

No, shipboard testing must be conducted in at least 2 distinct geographic locations to provide a range of geographic variability.

4. Can a shipboard test run occur entirely at one location by simply: (a) taking on, treating and sampling ballast water while in port, (b) holding that ballast water for 1 to 4 days during cargo operations, and (c) discharge 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 vendor claims, including the necessity for, or a lack thereof, specific minimum hold times.

5. Is it permissible to conduct WET tests during LB testing versus SB testing?

Yes, it is permissible to conduct WET testing during LB testing with a test at each salinity for which the BWMS is being type approved. However, a request on the basis of 162.060-10(b)(1) must be submitted by the MFR or the IL to the USCG. This request must state and provide reasons why such tests are not “practicable” during shipboard testing; the request must demonstrate that these methods are equivalent.

6. Question regarding the use of a brine tank for fresh water applications of electro-chlorination systems – can the shipboard testing be designed to evaluate both with and without a brine tank?

In the example case, the brine/seawater 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 seawater or brine to the generator. This could be achieved during LB or SB tests.

7. Do five valid SB 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 would need to be completed at a given salinity?

Five consecutive valid and successful trials are not required at each salinity during SB testing. A total of five such trials are required over a minimum 6 month period. Under 46 CFR 162.060-28(e)(2), the circumstances of the vessel’s operation during the period of SB testing must provide an acceptable range of geographic and seasonal variability.

8. If SB testing is conducted using a containerized system, will the type approval certificate limit the installation of my BWMS to containerized arrangements?

No, testing a system in a containerized arrangement will not necessarily be a limiting factor on a type approval certificate. During tests, the BWMS must be installed and operated in the vessel in a location and configuration consistent with its final intended use on operating vessels. The Coast Guard does not specify exact location or arrangement configurations unless the MFRs O&M manual includes such specifications.

9. Does the Coast Guard follow the guidance in the IMO BWM circular 33 from August 2011 which allows testing on scaled units to be performed as SB testing with a shorter time requirement (3 months)?

No, the IMO BWM circular 33 does not apply to U.S. type approval testing in accordance with 46 CFR 162.060.

10. Per 162.060-28(a), testing is to be on “a vessel”. It may be difficult to find a single vessel that would meet the source water qualities indicated in 162.060-28(e)(2)(i); could the testing be completed on more than one vessel and the results combined to provide the necessary number of test cycles? If so, how would the requirement for “five consecutive valid test cycles” be interpreted?

We assume the question is asking whether more than one unit can be tested on an equal number of ships. No, multiple units on different ships may not be used for SB testing. One unit must be used for all testing over the SB test period. Testing does not have to be conducted in each of the circumstances listed in -28(e)(2)(i), but every effort should be made to secure a ship that allows testing in more than one location in these types of areas (harbor and coastal, temperate, sub-tropical and tropical).

11. Must the TRO concentration in discharged water be less than the EPA's VGP limit of 0.1 mg/L?

It is not a requirement of 46 CFR 162.060 that discharges from a BWMS during type approval testing have TRO concentrations less than the limit set in the EPA's VGP. Residual concentrations of active substances or disinfection by-products measured during testing may be noted on the certificate or associated annexes.

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

A TUc 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 that identifies the limits for organic substances. The Coast Guard may include a notation regarding the toxicity measurements on the type approval certificate.

§ 162.060-30 TESTING REQUIREMENTS FOR BALLAST WATER MANAGEMENT SYSTEMS (BWMS) COMPONENTS

1. Does the Coast Guard have guidance for the circumstance when a BWMS component is too large to test at the test lab?

This can be addressed as a 162.060-10(b)(1) request for an alternative to an evaluation, inspection or test by a MFR, with input from the IL.

2. Does the USCG require component testing to be redone if previous vibration testing were conducted for 2 hours, not 4 hours?

A MFR could submit a 162.060-10(b)(1) request in order to justify not doing a 4 hour test. The USCG cannot accept a 2 hour test without this request.

3. Does the USCG require component testing to be redone if component testing completed for IMO type approval were not conducted in the sequence described?

According to 162.060-30(a)(10), a MFR could submit a request in order to justify not conducting tests in the prescribed sequence. The USCG cannot accept component testing conducted in a different sequence without this request.

4. Are UV chambers required to undergo component/environmental testing?

The entire chamber may not need to undergo component/environmental testing if it were possible to remove and test all attached electrical devices such as sensors, sockets, etc. from the UV chamber. Otherwise a MFR would have to submit a 162.060-10(b)(1) request.

5. For a UV based system, would the component testing of the UV system include the UV lamps?

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

6. Can demonstrated performance aboard a ship be substituted for the component inclination testing?

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

7. 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 inclination specified by -30(a)(9). Evaluation should include an explanation for this determination.

8. 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 Independent Laboratory?

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. 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.

9. Do all electric/electronic components in the treatment system need to be tested?

If instrumentation or other components function as part of the monitoring equipment required by 162.060-20(b) or as part of the control equipment required by 162.060-20(c), then they are subject to 162.060-30 testing requirements.

§ 162.060-32 TESTING AND EVALUATION REQUIREMENTS FOR ACTIVE SUBSTANCES, PREPARATIONS, AND RELEVANT CHEMICALS

1. Is it permissible to use a GESAMP report in order to satisfy the requirements of 162.060-32(b)?

162.060-32(b) is a MFR, not an IL requirement. If a MFR elects to have the IL make the determinations found in -32(b), it would be completed outside the scope of the IL. According to 162.060-34 (g)(1), the test report must include an appendix that has documentation regarding FIFRA requirements. A GESAMP report under regulation D-3 of the IMO BWM Convention would be acceptable to satisfy the requirements of -32(b), provided any included data from LB or SB testing were acceptable to the Coast Guard in accordance with -12 “Use and acceptance of existing test data”.

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 as systems that involve the use of active substances. Coast Guard recommends that BWMS MFRs contact EPA Office of Pesticide Programs, Antimicrobial Division (<http://www2.epa.gov/pesticide-contacts/contacts-office-pesticide-programs-antimicrobial-division>) regarding the applicability of FIFRA.

§ 162.060-40 REQUIREMENTS FOR INDEPENDENT LABORATORIES (ILs)

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

Our 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 USCG requirements.

§ 162.060-42 RESPONSIBILITIES FOR INDEPENDENT LABORATORIES (ILs)

1. Does the Coast Guard have a frame work or checklist for evaluating test facilities when reviewing IL applications?

Yes, the Coast Guard uses the IL checklist located at:
<http://homeport.uscg.mil/ballastwater>.

2. Please describe the sequence of events involved in type approval.

A summary of main events during the type approval process is located at:
<http://homeport.uscg.mil/ballastwater>.

3. Is it permissible to conduct type approval tests at a test facility under Independent Laboratory (IL) review?

The Coast Guard cannot authorize, or otherwise indicate in advance, that any testing by an organization that is not an 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 accepted as an IL.

APPENDIX A

Interpretation of 46 CFR 162.060-20(a)(4)

U.S. Department of
Homeland Security

United States
Coast Guard



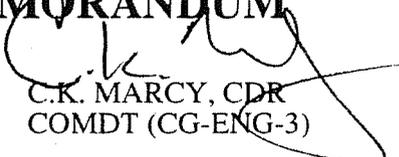
Commandant
United States Coast Guard

2100 Second St S.W.
Washington, DC 20593-7126
Staff Symbol: CG-ENG-3
Phone: (202) 372-1367
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16714/162.060/MSC-2
2012-2979

AUG 28 2012

MEMORANDUM

From:  C.K. MARCY, CDR
COMDT (CG-ENG-3)

Reply to
Attn of:

To: CG MSC-2

Subj: INTERPRETATION: 46 CFR 162.060-20(a)(4), DESIGN AND CONSTRUCTION REQUIREMENTS OF BALLAST WATER MANAGEMENT SYSTEMS (BWMS)

1. Design and construction criteria for U.S. type approved BWMS are listed in 46 CFR 162.060-20. Specifically, in paragraph (a)(4), a BWMS must meet "recognized national or international standards" for all related marine and electrical engineering systems. Considering the diverse nature of technologies that may be incorporated into a BWMS, an explicit list of acceptable standards could unintentionally limit innovation in developing a safe and effective BWMS. Consequently, this memo offers several avenues to demonstrate compliance with 162.060-20(a)(4). These options include conformance to:

- a. Existing federal regulations found in 46 CFR Subchapters F and J;
 - b. Rules of a Recognized Classification Society, as defined in 46 CFR Part 8; or
 - c. Appropriate application of a standard published from certain standards organizations.
2. BWMS designed and constructed to technical standards other than those listed in the attached enclosure will be evaluated by CG-ENG-3 on a case-by-case basis.
3. The scope of this memo is limited to 46 CFR 162.060-20(a)(4).

#

Enclosure: Recognized National or International Standards for Marine and Electrical Engineering Systems within a BWMS.

RECOGNIZED NATIONAL OR INTERNATIONAL STANDARDS FOR
MARINE AND ELECTRICAL ENGINEERING SYSTEMS WITHIN A
BALLAST WATER MANAGEMENT SYSTEM

- US Code of Federal Regulations (CFR), 46 CFR Subchapters F and J
- Rules of a Recognized Classification Society (as defined in 46 CFR 8)
- Appropriate application of a standard published by one of the following standards organizations:

American National Standards Institute (ANSI)

American Society of Mechanical Engineers (ASME)

American Society for Testing and Materials (ASTM)

International Electro technical Commission (IEC)

Institute of Electrical and Electronic Engineers (IEEE)

International Organization for Standardization (ISO)

National Electric Code (NEC)

National Electrical Manufacturers Association (NEMA)

Society of Automotive Engineers (SAE)

Underwriters Laboratory (UL)

Enclosure