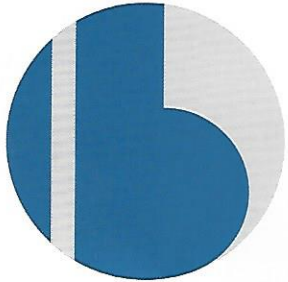


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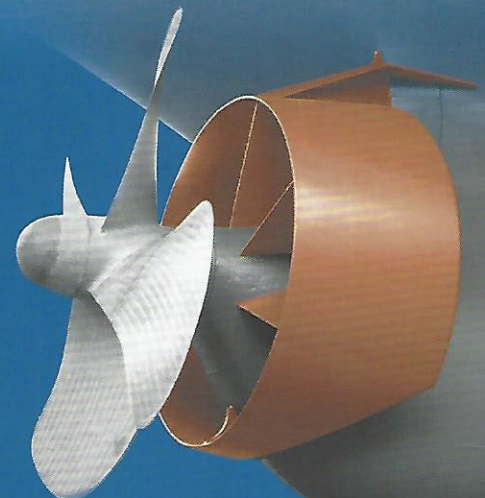


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Coming soon – ballast efficacy tests

New ballast water management systems will need to be subjected to “biological efficacy tests” – basically, checking that they actually work – in addition to using type approved systems, under legislation coming into force over coming years

By Andrew Marshall, VP of Business Development, Ecochlor

The next challenge for ballast water management systems (BWMSs) will be the IMO BWMS Code requirement (BWM.2/Circ.70) for biological efficacy commissioning tests.

This is scheduled for mandatory implementation by June 2022.

As of the time of this writing, some administrations – Singapore, Australia, Greece and Cyprus – have already adopted testing on ships sailing under their Flag. It is expected more will follow prior to the date of mandatory enforcement.

The logistics and planning for the commissioning test occurs at a stage where it is often overlooked with consequences that could be quite costly.



Ballast water training

Shipowners who do not plan their installation and testing schedule properly or neglect crew training risk significant time and cost consequences.

Different to type approval testing

There is a significant difference in the purpose of type approval testing and commissioning testing.

Type approval testing demonstrates that a maker’s BWMS is fit for purpose (i.e., the technology and configuration are capable of meeting the D-2 performance standards).

The purpose of commissioning testing is not to qualify or question the system’s type approval certification, but to confirm that the system’s treatment method is effective and properly operating in the approved installed configuration.

Commissioning testing somewhat resembles the shipboard testing that all BWMSs undergo during the IMO BWMS Code type approval process.

It requires that an approved Independent Lab (IL) board the vessel and collect ballast water samples during ballasting (voluntary) and de-ballasting.

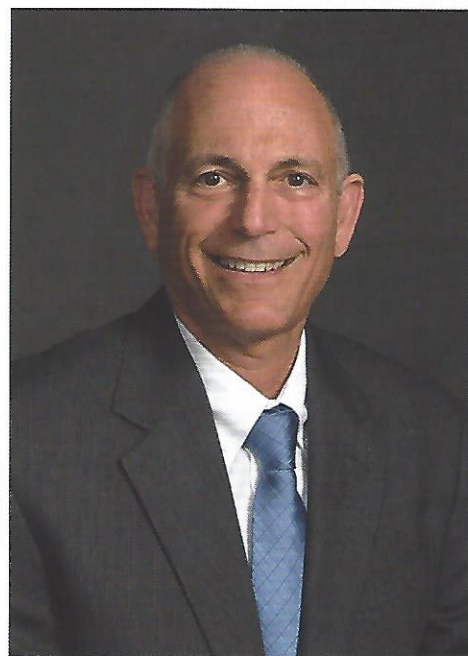
These samples are then sent to a laboratory for analysis to determine compliance with the D-2 standard. The crew is required to operate the BWMS for the full ballasting operation.

It sounds simple enough, but when you consider the planning and logistics necessary to carry out these testing requirements it can be overwhelming in consideration of all the other projects in progress during the dry dock period.

Failed tests

In May 2020, SGS Marine Service (SGS) released a white paper that showed the results from 95 BWMS indicative and detailed biology efficacy commission tests using 14 different vendors.

The results showed “the testing was carried out smoothly, and only 3 per cent of the tests were cancelled due to complications with the



Steve Candito, Ecochlor CEO

BWMS operations (e.g., due to automatic shutdown),” but 21 per cent of the tests failed to meet the D-2 performance standards for a variety of reasons.

Reducing risks

Ecochlor CEO, Steve Candito has identified a few simple ways the shipowner can significantly reduce the risk of a failed commissioning test.

First, get the approved test requirements from the vessel’s flag state.

Mr Candito recommends, “owners meet with the vessel flag early in the installation planning schedule and request their latest guidance regarding commissioning tests for BWMS certification.”

Obtaining this information will confirm and clarify the flag state requirements and other regulating organizations’ rules.

Second, dedicate time to properly plan, schedule, and conduct the commissioning tests.

Crew-training and BWMS manufacturer equipment testing are usually the last items to

complete before the vessel leaves the shipyard, and thus are often rushed.

“Adding commissioning tests to an already congested timetable will complicate the process,” he says.

Owners should aim to complete BWMS installation before the final phase of the shipyard period. This is so the commissioning tests can be conducted with sufficient time prior to the vessel’s scheduled departure from the shipyard.

Shipowners are encouraged to coordinate the BWMS installation completion with the arrival of the commissioning testing team.

A seamless turnover can be beneficial considering ballast water sampling and bacteriological analyses could take four to five days, which may extend the yard period, if not accounted for in the initial schedule.

Third, ballast tanks should be cleaned prior to the BWMS installation. Contamination coming from ballast tanks, that have not been cleaned at BWMS installation, and which therefore contain significant levels of untreated silts and sediments, has led to high failure rates during

testing.

“Because [cleaning tanks] is not seen as a requirement, it is frequently not prioritized because it can be laborious and expensive,” he says.

The fourth and last recommendation, if allowed, is to have the manufacturer attend the commissioning testing.

Although attendance is only as an observer, the BWMS vendor can make a huge difference to address any potential issues.

“With biological efficacy tests costing \$8,000 - \$10,000 USD, it is likely to be both timelier and more cost effective to have the BWMS manufacturer available as an additional level of support,” he says.

Extensions

It is important to note that in the event of a failed commissioning test for any number of reasons, shipowners may apply for a short-term (usually 3 month) extension.

Extensions are approved on a case-by-case basis by the flag administration to allow the vessel more time to complete testing

requirements.

Typically, the extension calls for the classification society to follow through in completing as much of the requirements as possible for issuance of the International Ballast Water Management Certificate (IBWMC).

Incomplete testing will result in an IBWMC with a “pending” notation. Due to travel restrictions from COVID-19, and the difficulty in getting the lab technicians on board ships, these extensions are issued with some frequency at this time, but likely will be more difficult to obtain as the barriers are lifted.

However, delaying the test until after the dry dock period has other challenges, even if the vessel’s departure is not delayed.

Later testing often increases the costs and offers many logistical obstacles in completing the commissioning in a timely manner. Vessel’s sailing schedules often change on short notice.

Moreover, if there is a problem with the BWMS installation which is related to the installation work by the shipyard, then it can be more difficult to have the problem rectified once the vessel has left the yard.

1.2% of low sulphur oil exceeds limits – Maritec

With 1.23 per cent of VLSFO used on vessels proven to have a sulphur level outside the regulatory limits, it raises the question, at what point does the whole vessel become non compliant, Maritec asks

Singapore fuel test centre Maritec reports that 1.23 per cent of tests for the sulphur level in very low sulphur fuel oil (VLSFO) show that sulphur is between 0.51 to 0.53 per cent.

This exceeds the mandatory allowable 0.50 per cent, under IMO 2020.

Although having one reading of fuel with sulphur of 0.53 per cent does not necessarily make the vessel uncompliant.

“IMO has adopted a 95 per cent confidence testing boundary,” says John Ren Di, VP business development with Maritec.

“However, this applies only to in-use and onboard samples, and not the sample taken at the manifold.” (The manifold is the bunker loading connection on the tanker).

“Given that there will be variability between test results, even from identical samples tested in the same lab, it raises the question: when does an individual test result indicate that the tested VLSFO fuel is

compliant?”

Ship operators need to fit sampling points to existing ships built before 01 April 2022 no later than the first IAPP renewal survey after 01 April 2023. For new ships they need to be designated on delivery.

Definitely, in-use and onboard samples cannot exceed the maximum limit of 0.53 per cent (by mole). If sulphur content is found to exceed 0.53 per cent, then the source of contamination must be detailed, and evidence provided indicating that all possible steps were taken to ensure compliance.

“It would be prudent for vessel staff to witness and document the sampling and sealing by Port State Control Inspectors,” said Mr Ren Di.

“Ideally, they should take representative samples of their own and countersealed by the sampling inspector for independent verification in case of dispute.”

Maritec recommends that, in addition to routine full analysis on new bunker samples, crew also take onboard and in-use samples.

Maritec provides the sulphur verification kit to all vessels in their testing programme.

“There is always a possibility of loading non-compliant fuel onboard. Mitigating this risk begins with sourcing and purchasing compliant fuel oil and reducing the risk of poor-quality fuel oil being delivered to the vessel,” said Mr Ren Di.

“Knowing the appropriate limits at each stage of the process will help keep vessels compliant and operating in line with IMO’s objective to reduce air pollution and protect the environment

In June 2020, Maritec was acquired by Centre Testing International Group (CTI Group). Within a few months, the Marine Services Division of CTI Group was fully integrated with Maritec.