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IMO comments on study that states ballast water tests to prevent spread of disease are a failure

By **Laura Stackhouse** | Industry | Mon, 02 Feb 2015 - 15:30 GMT

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UPDATE: The IMO has responded to a peer-reviewed paper that suggests that over the past 10 years, 95% of tests into the bacteria removal from ships' ballast water have proven invalid. One of the author's says, "if ships install treatment systems that do not effectively remove human pathogens from ballast discharges, people will die. Is the IMO okay with that?"

The International Maritime Organisation has responded to a new study published in the Marine Pollution Bulletin, which states an international testing program meant to stop the spread of diseases in ships' ballast water is a failure.

Ballast water is carried on ships to maintain proper buoyancy, but contains millions of organisms including human pathogens, which can be introduced into the world in ballast discharges. Shipboard treatment equipment designed to remove these organisms is tested and certified under a program created by the UN's International Maritime Organisation in 2004, which includes tests for the removal or killing of target microbes that are indicators of bacteria that cause human disease.

The report reveals that the last 10 years of tests have been run with test water that contained no target microbes, which meant it was impossible for the treatment equipment to fail.

Approximately 95 percent of tests that took place between 2004 and 2013 were invalid. In nearly two-thirds of the tests there were no detachable target microbes in the test water before treatment.

The fact that the tests are defective means that they have provided no information on the ability of the treatment systems to prevent the transport and release of bacteria that cause human disease.

"Since treatment is our main defense against spreading diseases in ballast water, failing to test the treatment equipment may have serious consequences," says Dr Cohen.

The authors of the study say that new, effective test protocols are needed, and that the current approved treatment systems will need to be re-tested. “U.S. and international agencies [need to] act quickly to develop the protocols and require the new tests” to allow the new systems to not cause delays to the ballast discharge regulations coming into place.

The IMO commented on the study to offer a few points of clarification. “It should be specified that the paper relates to the International Convention for the Control and Management of Ships’ Ballast Water and Sediments, 2004,” said a spokeswoman for the organisation. “The aim of the convention is not only to prevent the spread of human disease via ballast water, as implied in the paper, but to prevent, minimise and ultimately eliminate the risks to the environment, human health, property and resources arising from the transfer of harmful aquatic organisms and pathogens through the control and management of ship’s ballast water and sediments.

“To comply with the convention and to ensure that ballast water management systems (BWMS) meet the ballast water performance standard described in regulation D-2 of the convention, such systems are to be approved by the administration taking into account the guidelines for approval of ballast water management systems (G8). These guidelines require that during the testing procedures certain indicator bacteria are measured in the influent water and at the time of discharge.

“However, due to health, safety and practical reasons, it is not required to add bacteria to the influent test water.

“The paper states that the majority of type approved BWMS have been tested with levels of bacteria that are lower than the maximum allowed to be discharged in accordance with regulation D-2 of the convention. This is acceptable, according to guidelines (G8) although the authors of the paper are of the view that the levels of bacteria in the influent test water should exceed the discharge limits. In their view this leads to uncertainty on the efficacy of type-approved BWMS with regard to eliminating bacteria from ballast water.

“No evidence is presented, however, suggesting that any type approved BWMS would discharge water after treatment with bacteria at levels above those allowed by regulation D-2. Furthermore research on the topic has over the years shown that bacteria are effectively neutralised by approved BWMS."

After reading the IMO’s response, Dr Cohen called the comments “puzzling”. “[The IMO] doesn’t dispute the fact that the tests were meaningless, but suggests that IMO is fine with that. The IMO guidelines required test facilities to conduct tests (which the shipping industry will ultimately pay for) that are meaningless. Is IMO okay with that? The public and the ship owners will pay for treatment systems have been told that systems were tested and met the IMO’s public health standards under rigorous test conditions, when in fact they hadn’t been tested at all.

“The potential consequences are serious. According to IMO, ballast water discharges have introduced ‘pathogens that are known to have caused injury to public health’. At the end of the day, if ships install inadequately tested treatment systems that do not effectively remove human pathogens from ballast discharges, people will die - potentially very large numbers of people, especially in countries that lack comprehensive wastewater and drink water treatment and thus are vulnerable to devastating epidemics from newly introduced waterborne diseases.

“The results from our study are not in question: ballast water treatment systems have been type approved even though tests conducted on them that were meant to prevent the spread of human pathogens were meaningless. What is in question - apparently - is whether the IMO will do something about it.

Further Reading

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