

**On-Board Testing of Ship Ballast Water Management System to Begin
– Compact System Offers Japan's Largest Treatment Capacity –**

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JFE Engineering Corporation

Monohakobi Technology Institute

TOKYO_ JFE Engineering Corporation and the Monohakobi Technology Institute (MTI), a subsidiary of NYK Line, will begin conducting on-board demonstration testing of the vessel Ballast Water Management System (JFE-BWMS)(*1, 2) in November this year using a specially equipped bulk carrier.

The demonstration tests will be conducted jointly by JFE Engineering, which developed the equipment, and MTI, which will verify the applicability of the equipment for use on board ships. The two companies will strive to obtain final approval of the equipment as a ballast water management system making use of active substances (G9 Final Approval)(*3) from the International Maritime Organization (IMO) and to obtain type approval (G8)(*4) by the Ministry of Land, Infrastructure, Transport and Tourism during fiscal year 2009.

The equipment to be used during the demonstration testing has a treatment capacity of 1,000m³/h, the capacity envisioned for use on board large ocean-going ships and the largest treatment capacity in Japan.(*5) The equipment is being tested on the SAGA PIONEER(*6), an open hatch bulker commissioned in August 2008.

The compact and easy-to-use system employs high-performance filters, appropriate and safe chemical agents and cavitation (*7) devices to provide a superior mix of functions. The system consists of a high-performance filtration system, cavitation device, chemical agent supply system, chemical agent tank, and measurement control equipment. A multiple process system, the JFE-BWMS is nevertheless simple and compact, and can be installed with relative ease in ships with limited space due to its modular construction. Simple design and low installation costs make the JFE-BWMS a practical, easy-to-operate ballast water management solution.

JFE Engineering began testing this system in 2004 using its own land-based equipment and has successfully reduced the amount of harmful aquatic organisms in

ballast water to within the parameters of the D-2 Standard.(*8) The company obtained basic approval for the use of chemical agents (G9 Basic Approval) at the 58th session of the IMO Marine Environment Protection Committee in London earlier this month.

JFE Engineering and MTI intend to continue providing cutting-edge environmental technology to contribute to global environmental protection.

Reference 1: System outline

Reference 2: Ballast water treatment flow chart

Notes:

*1: Empty tankers and other cargo vessels use sea water to maintain balance during a voyage. This water is known as ballast water. The ballast tank, located in the bottom of the ship, is usually filled with sea water at the port of cargo discharge; this water is then discharged at the port where the vessel will be loaded with cargo. Disruption of local ecosystems by marine organisms transported in ballast water is an international problem, and in 2004, IMO adopted the "International Convention for the Control and Management of Ships' Ballast Water and Sediments". The Convention requires that all large ocean-going ships subject to its conditions execute ballast water management procedures to ensure that the volume of aquatic organisms living in ballast water falls within the parameters of the international discharge standard (D-2 Standard).

*2: JFE-BWMS is an abbreviation for the JFE-Ballast Water Management System. The system is used to reduce the volume of aquatic organisms living in ballast water to a level that complies with the D-2 Standard.

*3: G9 is a procedure for the approval of ballast water management systems that make use of active substances. G9 clearly outlines the procedures that must be taken for approval of chemical products used in ballast water management systems.

*4: G8 refers to the guidelines for type certification of ballast water management systems.

*5: The largest treatment capacity of any on-board demonstration testing equipment from a domestic manufacturer.



*6: SAGA PIONEER (photo)

Ship Type: Box Shaped Bulker

Ship Owner: SAGA Shipholding (Norway) AS
(NYK Group)

Deadweight (summer): 46,882MT

*7: Cavitation is a phenomenon characterized by the instantaneous formation of vapor bubbles in a liquid when that liquid reaches a low pressure area immediately after flowing through a narrow section of pipe. Bubbles generated by this phenomenon inside the cavitation device can increase the plankton eradication effect by physically destroying the plankton and by instantaneously stirring the chemical agents.

*8: The D-2 Standard is a ballast water discharge standard stipulated under section D-2 of the "International Convention for the Control and Management of Ships' Ballast Water and Sediments."

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