U.S. Department of Homeland Security
United States Coast Guard

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United States Coast Guard

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5760
March 14, 2016

Miura Co., Ltd.
Ship Machinery Department
Sales Engineering Division
Attn: Mr. Akio Yamanishi
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ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE

The Coast Guard has completed its review of additional materials submitted with the Alternate Management System (AMS) application submitted by Miura Co., Ltd., for the Miura ballast water treatment system (BWTS). This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for the Miura BWTS models specified below, as type approved by the Japanese Ministry of Land, Infrastructure, Transport, and Tourism, and as detailed in Ministry's type approval (TA) certificate No. 11 issued on March 27, 2014, and as updated on January 4, 2016. *This revised AMS acceptance letter recognizes additional freshwater testing conducted for the Japanese Ministry and accepts the Miura BWTS for use in freshwaters of the Unites States.*

The following Miura models are accepted for use as an AMS in U.S. waters:

- Model HK-200(E) with a treatment rated capacity (TRC) of 200 cubic meters /hour (m^3/h); including explosion proof and non-explosion proof types of this model.
- Model HK-300(E) with a TRC of 300 m^3/h; including explosion proof and non-explosion proof types of this model.
- Models HK-400(E) - HK-6000(E) with TRCs ranging from 400 m^3/h to 6000 m^3/h, including explosion proof and non-explosion proof types of these models. These larger TRC models are achieved by installing multiple HK-200 (E) and HK-300(E) models in parallel or in series in order to obtain the desired total treatment capacity up to a maximum flow rate of 6000 m^3/h.

The Miura BWTS retains its original AMS identification number:

AMS-2014-Miura-001

Coast Guard acceptance of the Miura BWTS as an AMS does not accord or imply conformance to or compliance with any other Federal, state, or local water discharge effluent limitations that

may apply to the vessel on which the AMS operates or the regulatory regimes and locations within which it operates. The owner and operator of the vessel must comply with all applicable laws, regulations, and treaties, including the Clean Water Act and associated provisions of the Vessel General Permit (VGP); the Federal Insecticide, Fungicide, and Rodenticide Act of 1972, as amended (FIFRA); other Coast Guard safety regulations and requirements; and other applicable laws and regulations.

In accordance with 33 CFR 151.2026 (a)(5), the AMS application required the submittal of a type approval application for the BWTS. The type approval information submitted with the AMS application does not have any bearing on the type approval status of the BWTS, nor does Coast Guard acceptance of the Miura BWTS as an AMS indicate that the BWTS meets requirements for Coast Guard type approval.

The following conditions apply for the operation of the Miura AMS in U.S. waters:

1. The AMS manufacturer must comply with all the general conditions of certification stipulated in the type approval certificate issued by the Ministry of Land, Infrastructure, Transport, and Tourism under the authority of the government of Japan, as referenced above. Revocation of type approval by the approving authority will result in revocation of this AMS acceptance. Copies of all reports required under the stated conditions of use must be submitted to the Environmental Standards Division (OES-3) at the following address or email:

   COMMANDANT (CG-OES-3)
   United States Coast Guard Stop 7509
   2703 Martin Luther King Jr. Ave SE
   Washington DC 20593-7509
   Tel: 202-372-1402
   e-mail: environmental_standards@uscg.mil

2. Installation and repairs of the AMS must be performed in accordance with the manufacturer's instructions and approved by the flag administration or its representative.

3. Operation and maintenance must be conducted in accordance with all specifications and limiting conditions stipulated on the type approval certificate and with the manufacturer's instructions, including any limitations posed by the environment (for example, water quality, temperature, salinity, or other parameters) or vessel operations (for example, voyage duration, pumping rates, or other constraints). The following specific conditions apply:

   a. **Flow rates:** The flow rate of ballast water through the system should not exceed the treatment rated capacity (TRC) limitations for the installed Miura model, as specified on the type approval certificate. Installed systems with treatment rated capacities of 400 m^3/hr to 6000 m^3/hr may be achieved by installing multiple 200 and 300 m^3/hr ballast water treatment units in parallel or in series, as permitted by and described in the type approval certificate. In order to avoid overheating of the system's UV lamps,

the minimum flow rate through the UV reaction chambers for all configurations of this BWTS is 10% of the treatment rated capacity of the installed system. A historical record of flow rates is available via readouts from the control panel.

b. **Differential pressure across the filter:** This BWTS is equipped with a 20 micrometer (um) mesh filter system that is designed to remove organisms greater than or equal to 50 um in size. The filter element is kept clean of debris by both a backwash flushing process and a high pressure injection nozzle spraying process. The suction nozzle backwash cleaning process is performed continuously during ballast water treatment operations, regardless of the differential pressure across the filter element. If the differential pressure across the filter element exceeds 60 kPa (0.6 bar), an alarm is activated at the control panel and this BWTS will automatically shut down. In order to supplement to the suction nozzle backwash process, filter element cleaning is also accomplished by a high pressure injection nozzle spraying process that "blasts" debris from the filter. This high pressure injection nozzle spray process normally actuates at a preset level of 20 kPa (0.2 bar) pressure differential across the filter element. The operator may adjust this injection nozzle actuation setting upward to a maximum of 40 kPa (0.4 bar) pressure differential across the filter element in situations where the incoming ballast water contains a high sediment load. A historical record of filter pressure differentials can be obtained via readouts from the control panel.

c. **UV intensity, transmittance, and dosage:** The design UV dose for the Miura BWTS stated in the system's specification documentation is 130 milli-Joules per square centimeter (130 mJ/ cm^2). The type approval certificate stipulates a minimum permissible UV dose for the Miura BWTS of 105 mJ/ cm^2. The UV dose is determined by the system's automatic control unit based upon UV intensity measurements from a sensor within the UV reaction chamber. Operation of this BWTS at a UV dose below 105 mJ/ cm^2 will result in ballast water treatment that is not in accordance with the efficacy results specified by the type approval certificate.

The Miura BWTS is designed to automatically adjust UV dose within the UV reaction chambers in response to changes in ballast water conditions or flow rates. If ballast water conditions (such as very low turbidity) allow for a reduction in UV dose, the system has the capability to automatically lower the UV light intensity within the reaction chambers. Furthermore, this BWTS can effectively increase UV dose above 130 mJ/ cm^2 during periods of ballast water conditions (such as high turbidity) that are unfavorable for UV light transmittance.

This BWTS employs a non-chemical clean-in-place (CIP) apparatus that removes film buildup from the quartz UV lamp sleeves at the beginning and the end of each ballasting or de-ballasting treatment cycle, at one hour intervals during the treatment cycles, and whenever UV intensity decreases within the UV reaction chamber. The system is equipped with minimum flow rate (10% of TRC) and minimum UV dose (105 mJ/ cm^2) alarms and has the capability to automatically initiate BWTS shutdown whenever these operating parameters fall below permissible limits. The Miura BWTS will also alarm and then shutdown should the ballast water temperature in the

UV reaction chamber(s) exceed 50 degrees Centigrade. UV dose, UV intensity, and ballast water flow rate values can be obtained via data readouts from the control panel.

A historical record documenting that the system has been operated within these criteria, including a record of any alarm conditions, any deviations from the manufacturer's operating instructions, or any conditions and requirements noted above, shall be available for review onboard the vessel.

4. If installed on a U.S. flag vessel, it must be shown that the system and installation comply with or provide an equivalent level of safety to the requirements of 46 CFR Subchapter F (Marine Engineering) and Subchapter J (Electrical Engineering). All electrical equipment located within hazardous areas must be explosion proof or intrinsically safe as certified by an independent laboratory recognized by USCG per 46 CFR 111.105-7.

5. Use of the AMS is specified in the ship's ballast water management plan (BW plan), required by 33 CFR 151.2050(g). The BW plan must identify the following: (1) the ballast water management practices to be used in the event the AMS cannot be used, and (2) the personnel responsible for the operation, maintenance, and repair of the BWTS. An up-to-date record of the operation, maintenance, and repair of the BWTS must be maintained onboard the ship.

6. Any change in design, materials, manufacturing, or intended operational conditions of this BWTS without prior notification to, and acceptance by, the U. S. Coast Guard will automatically invalidate this AMS acceptance. Prior to any such change, the manufacturer of an AMS must notify the Commanding Officer, U. S. Coast Guard Marine Safety Center (MSC), at the following address or e-mail:

   Commanding Officer (MSC)
   Attn: Marine Safety Center
   U.S. Coast Guard Headquarters
   2703 Martin Luther King Jr. Ave. SE
   Washington, DC 20593-7509
   e-mail: msc@uscg.mil

   The notification must include the following: (1) a description of the change, the reason it is required, and its intended advantages; (2) an explanation of any effect of the change on installation, operation, maintenance, or repair requirements; and (3) an indication of whether or not the original configuration of the BWTS will be discontinued.

7. If the installed AMS does not operate properly when treating ballast water intended for discharge in U.S. waters, the person directing the movement of the vessel must ensure that the problem is reported to the nearest Coast Guard Captain of the Port (COTP) or District Commander as soon as practicable. The Coast Guard shall be notified of any treatment system or component failures, any irreparable or recurring damage to components of the AMS, frequent process upsets or out-of-bounds operating conditions, or other situations or process-related conditions that may reduce treatment effectiveness.

The vessel may continue to the next U.S. port of call, subject to the directions of the COTP or District Commander, as provided by 33 CFR 160.

8. All transport and handling of chemicals required for proper operation of the AMS must be conducted in accordance with 46 CFR 147 (Hazardous Ships' Stores), 49 CFR 171-180 (Hazardous Materials Regulations), and 46 CFR 98.30 (portable tanks), as appropriate.

9. Use of the AMS must be reported in the ship's ballast water management reports submitted to the National Ballast Information Clearinghouse, as required by 33 CFR 151.2060, as follows:

   a. In Section 4, report the number of tanks treated by the AMS in the space labeled "Underwent Alternative Management";

   b. In Section 4, write the AMS identification number (AMS-2014-Miura-001) in the space labeled "Please specify alternative method(s) used, if any," and;

   c. In Section 5, in the middle section titled "BW MANAGEMENT PRACTICES" identify the management method as "ALT" under the heading "Method (ER/FT/ALT)" for each tank for which the AMS was used.

The Coast Guard may suspend, withdraw or terminate the acceptance of this BWTS as an AMS in accordance with 46 CFR 2.75-40, 2.75-50(a) and 2.75-50(b), respectively.

A copy of this letter shall be provided to each vessel with this installed AMS and shall be available for review when the vessel is operating in U.S. waters.

I thank you for your dedicated efforts to seek out AMS acceptance, and we look forward to working with you throughout the type approval process. If you have any questions concerning this letter, you may contact Ms. Regina Bergner of my staff at Regina.R.Bergner@uscg.mil.

Sincerely,

S.J. Kelly
Captain, U.S. Coast Guard
Office of Operating and Environmental Standards