U.S. Department of Homeland Security

United States Coast Guard

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ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by KT Marine Co., Ltd. for the MARINOMATE ballast water treatment system (BWTS). This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for the MARINOMATE BWTS models specified below. The models are type approved by the Republic of Korea's Ministry of Oceans and Fisheries, as detailed in type approval certificate 2016-3 issued March 28, 2016.

The MARINOMATE model with the following treatment rated capacity (TRC), as expressed in cubic meters per hour (m^3/hr), is accepted for use as an AMS in U.S. waters:

- MARINOMATE-300 with a TRC of 300 m^3/h

The MARINOMATE model is assigned the following AMS identification number:

AMS-2016-KT MARINE-MARINOMATE-001

Coast Guard acceptance of the MARINOMATE 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 MARINOMATE BWTS as an AMS indicate that the BWTS meets requirements for Coast Guard type approval.

The following conditions apply for the operation of the MARINOMATE BWTS in U.S. waters:

1. The AMS manufacturer must comply with all general conditions of certification stipulated in the type approval certificate issued by the Ministry of Oceans and Fisheries of the Republic of Korea, 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 Office of Environmental Standards (OES-3) at the following address or email:

   COMMANDANT (CG-OES-3)
   U.S. Coast Guard Stop 7509
   2703 Martin Luther King Jr. Ave SE
   Washington DC 20593-7509
   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 manufacturers 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 TRC for the installed MARINOMATE model, as specified on the type approval certificate.

   b. **Ballast Water Salinity:** The MARINOMATE™ Ballast Water Management System (BWMS) uses in situ electrolysis with seawater to produce the Active Substance, chlorine, to treat the ballast water. The electrolysis unit of the MARINOMATE BWTS is designed to operate at a seawater salinity of 8 practical salinity units (PSU) or more.

   c. **Ballast Water Temperature:** The operations manual specifies that ballast water uptake must be greater than 4 °C. In low temperature operations, the influent flow to the electrolyzer must be augmented with the seawater from the cooling water system of a motor ship or the dump condenser system of a steam turbine ship to increase the temperature to operating conditions. The vessel's ballast water management plan must specify the equipment and source water used in low temperature operations.

d. **Design dose of active substances:** During uptake of ballast water, the MARINOMATE BWTS destroys microorganisms using a "plankill™ pipe" unit and disinfection by chlorine produced by electrolysis of seawater. The electrolysis unit is mounted directly in the main ballast pipeline. Operation is controlled by a TRO sensor which adjusts the power supply to maintain the required TRO concentration of 10 mg/L. The system is monitored continuously during operation by TRO detectors installed to measure TRO concentrations of treated water and of neutralized water to be discharged.

e. **Maximum allowable discharge concentration (MADC):** Residual concentrations of active substances must be measured before discharge to ensure compliance with all applicable federal, state, and local water quality effluent limits. During de-ballasting, the ballast water passes through the neutralization unit before being discharged overboard. The MARINOMATE BWTS uses an aqueous solution of sodium thiosulfate injected into the de-ballasting line to neutralize residual TRO. The injection rate of the neutralizer solution is controlled by monitoring the de-ballasting flow rate and residual TRO concentration. During deballasting, the discharge water is monitored by a TRO sensor, and a feedback control system controls the dosage of neutralizing solution into the deballasting pipeline to maintain a TRO concentration of less than 0.2 mg/L as Cl_2 in the discharge water.

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 must be specified in the ship's ballast water management plan (BW plan), required by 33CFR 151.2050(g). The BW plan must identify: (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 (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.

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. Report the AMS identification number, located toward the beginning of this letter and in bolded text, in "Vessel Information" section in the space labeled "Onboard BW Management System" and;

   b. In the "Ballast Water History" section, for each tank for which the AMS was used, select the "Event" as "Onboard Treatment" for one of the reported tank events (e.g., Discharge, Onboard treatment, Source).

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 AMS installed 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. Debbie Duckworth of my staff at (202) 372-1429 or Debbie.Duckworth@uscg.mil.

Sincerely,

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