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

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December 1, 2014

Sumitomo Electric Industries, Ltd.
Ballast Water Treatment Systems Dept.
New Business Frontier R&D Laboratories
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Japan

ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by Sumitomo Electric Industries, Ltd. for the ECOMARINE ballast water treatment system (BWTS). This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for the ECOMARINE 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. 12 issued on June 18, 2014.

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

- EU-100 with a treatment rated capacity (TRC) of 100 cubic meters /hour (m^3/h);
- EU-200 with a TRC of 200 m^3/h;
- EU-250 with a TRC of 250 m^3/h;
- EU-350 with a TRC of 350 m^3/h;
- EU-500 with a TRC of 500 m^3/h;
- EU-600 with a TRC of 600 m^3/h;
- EU-750 with a TRC of 750 m^3/h;
- EU-850 with a TRC of 850 m^3/h;
- EU-1000 with a TRC of 1000 m^3/h.

The ECOMARINE BWTS is assigned the following AMS identification number:

AMS-2014-Sumitomo ECOMARINE-001

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

The following conditions apply for the operation of the ECOMARINE 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) for the installed ECOMARINE model, as specified on the type approval certificate. The minimum permissible flow rate for the ECOMARINE BWTS varies by model. These minimum flow rates are provided in a table listing alarm and shutdown conditions in Section 7.2 of the ECOMARINE operations manual. 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 rotational filter system designed to remove organisms greater than 50 um in size. The filter is

kept clean of debris by a continuous flash washing process that uses incoming ballast water. If the differential pressure across the filter element exceeds 30 kPa (0.3 bar), an alarm is activated at the control panel(s). Additionally, if the differential pressure across the filter exceeds 50 kPa (0.5 bar), then this BWTS will shut down. A historical record of filter pressure differentials can be obtained via readouts from the control panel.

c. **UV intensity, transmittance, and dosage:** The operations manual for the ECOMARINE BWTS specifies a design UV dose range of 100 to 150 milli-Joules per square centimeter (mJ/cm^2). The type approval certificate for this BWTS stipulates a minimum permissible UV dose of 100 mJ/ cm^2. Operation of this system at a UV dose below 100 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 UV dose is determined by the system's automatic control unit based upon UV intensity measurements from a sensor within each UV reaction chamber. The ECOMARINE BWTS has the capacity to adjust UV dose within the UV reaction chambers in response to changes in ballast water conditions (e.g. turbidity) or flow rates. This BWTS also employs a non-chemical clean-in-place (CIP) apparatus that automatically removes film buildup from the quartz UV lamp sleeves at the beginning of each ballasting or de-ballasting treatment cycle and at one hour intervals during the treatment cycles. The system is equipped with maximum and minimum flow rate and maximum and minimum UV dose alarms and it has the capacity to automatically initiate BWTS shutdown whenever these operating parameters fall outside permissible limits. The maximum and minimum flow rate and UV dose limits for each ECOMARINE BWTS model are listed in a table in Section 7.2 of the system's operations manual. This BWTS will also alarm and then shutdown should the ballast water temperature in the UV reaction chamber exceed 45 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, shall be made available for review onboard the vessel.

4. Because the ECOMARINE BWTS has not been adequately tested in freshwater, its use as an AMS is limited to the treatment of marine and brackish water with a practical salinity unit (PSU) concentration greater than 1.

5. 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.

6. 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.

7. 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 Stop 7410
   4200 Wilson Blvd, Suite 400
   Arlington VA 20598-7410
   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.

8. 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, irreparable 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.

9. 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.

10. 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-Sumitomo ECOMARINE-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 Mr. John Meehan of my staff at John.A.Meehan@uscg.mil.

Sincerely,

R. E. Bailey

R. E. BAILEY
Captain, U.S. Coast Guard
Office of Operating and Environmental Standards
By direction