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August 18, 2017

BIO-UV SAS

Attn: Ms. Charlène Ceresola
850 Avenue Louis Médard
34400 Lunel
France

ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE - UPDATE

The Coast Guard has completed its review of materials submitted in addition to the Alternate Management System (AMS) application received from BIO-UV SAS for the BIO-SEA ballast water treatment system (BWTS). These BIO-SEA® models are type approved by the Bureau Veritas Marine and Offshore on behalf of the French Maritime Authority, as detailed in two type approval certificates, No. 34154/A3 MMF issued on 12 April 2017, and certificate No. 46835/A0 MMF issued on 10 August 2017. Accordingly, the following BIO-SEA models, using mechanical filtration and ultraviolet radiation, with the following treatment rated capacity (TRC) expressed in cubic meters per hour (m^3/hr), are accepted for use as an AMS in U.S. waters:

Models utilizing the Filtersafe (40 μm) or Filtrex (20-40 μm) filters:

- BIO-SEA 100 with a maximum TRC of 100 m^3/h ;
- BIO-SEA 200 with a maximum TRC of 200 m^3/h ;
- BIO-SEA 300 with a maximum TRC of 300 m^3/h ;
- BIO-SEA 400 with a maximum TRC of 400 m^3/h ;
- BIO-SEA 500 with a maximum TRC of 500 m^3/h ;
- BIO-SEA 600 with a maximum TRC of 600 m^3/h ;
- BIO-SEA 700 with a maximum TRC of 700 m^3/h ;
- BIO-SEA 800 with a maximum TRC of 800 m^3/h ;
- BIO-SEA 900 with a maximum TRC of 900 m^3/h ;
- BIO-SEA 1000 with a maximum TRC of 1,000 m^3/h ;
- BIO-SEA 1100 with a maximum TRC of 1,100 m^3/h ;
- BIO-SEA 1200 with a maximum TRC of 1,200 m^3/h ;
- BIO-SEA 1300 with a maximum TRC of 1,300 m^3/h ;
- BIO-SEA 1400 with a maximum TRC of 1,400 m^3/h ;
- BIO-SEA 1500 with a maximum TRC of 1,500 m^3/h ;
- BIO-SEA 1600 with a maximum TRC of 1,600 m^3/h ;
- BIO-SEA 1700 with a maximum TRC of 1,700 m^3/h ;
- BIO-SEA 1800 with a maximum TRC of 1,800 m^3/h ;
- BIO-SEA 1900 with a maximum TRC of 1,900 m^3/h ;
- BIO-SEA 2000 with a maximum TRC of 2,000 m^3/h ;

Models utilizing the Filtrex (20 µm) filters:

- BIO-SEA A01-0055 with a TRC range of 10 - 55 m³/h;
- BIO-SEA A01-0085 with a TRC range of 15 - 87 m³/h;
- BIO-SEA A01-0135 with a TRC range of 25 - 100 m³/h;
- BIO-SEA A01-0150 with a TRC range of 35 - 100 m³/h;
- BIO-SEA A02-0190 with a TRC range of 35 - 190 m³/h;
- BIO-SEA A02-0250 with a TRC range of 35 - 200 m³/h;
- BIO-SEA A02-0300 with a TRC range of 45 - 200 m³/h;
- BIO-SEA A03-0340 with a TRC range of 45 - 300 m³/h;
- BIO-SEA A03-0450 with a TRC range of 50 - 300 m³/h;
- BIO-SEA A04-0500 with a TRC range of 50 - 400 m³/h;
- BIO-SEA A04-0600 with a TRC range of 65 - 400 m³/h;
- BIO-SEA A05-0500 with a TRC range of 50 - 500 m³/h;
- BIO-SEA A05-0750 with a TRC range of 65 - 500 m³/h;
- BIO-SEA A06-0750 with a TRC range of 65 - 600 m³/h;
- BIO-SEA A06-0900 with a TRC range of 95 - 600 m³/h;
- BIO-SEA A07-0750 with a TRC range of 65 - 700 m³/h;
- BIO-SEA A07-1000 with a TRC range of 95 - 700 m³/h;
- BIO-SEA A08-1200 with a TRC range of 126 - 800 m³/h;
- BIO-SEA A09-1350 with a TRC range of 126 - 900 m³/h;
- BIO-SEA A10-1000 with a TRC range of 95 - 1,000 m³/h;
- BIO-SEA A10-1500 with a TRC range of 126 - 1,000 m³/h;
- BIO-SEA A11-1650 with a TRC range of 126 - 1,100 m³/h;
- BIO-SEA A12-1500 with a TRC range of 126 - 1,200 m³/h;
- BIO-SEA A12-1800 with a TRC range of 126 - 1,200 m³/h;
- BIO-SEA A14-1500 with a TRC range of 126 - 1,400 m³/h; and
- BIO-SEA A14-2000 with a TRC range of 126 - 1,400 m³/h.

For greater TRC, multiple UV reactors may be installed in parallel in multiples of 100 m³/hr, as indicated in the type approval certificates.

The BIO-SEA BWTS are assigned the following AMS identification number:

AMS-2017-BIO-SEA-001

Coast Guard acceptance of the BIO-SEA 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 BIO-SEA BWTS system as an AMS indicate that the BWTS meets requirements for Coast Guard type approval.

The following conditions apply for the operation of the BIO-SEA 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 Bureau Veritas Marine and Offshore on behalf of the French Maritime Authority, 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)
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 certificate of type approval and with the manufacturer's instructions, including any limitations posed by 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:** For all models, the maximum flow rate per UV reactor is 100 m³/hr, and the minimum flow rate applies of 5 m³/hr. The TRC of the BWTS must not be less than the rated flow rate of the ballast pump.
 - b. **UV intensity:** For all models, a minimum UV intensity of 700 W/m² per reactor must be maintained to achieve the designed biological efficacy. For all models, the maximum electric power per lamp is 22 kW.

- c. **Operating Pressure:** For the Bio-SEA models using the Filtersafe filter, minimum operating pressure is 1.0 and the maximum operating pressure is 6 to 10 bar. For all models using the Filtrex filter, the minimum operating pressure is 1.5 and the maximum operating pressure is 10 bar. For all models, the minimum operating pressure in the system is 1 bar.
- d. **Water Temperature and Ambient Temperature Operating Range:** The system is designed to operate in water temperatures ranging from -2 to 35 °C, with ambient air temperatures ranging from 0 to 55 °C.
- e. **Differential pressure across the filter:** For the Bio-SEA models using the Filtersafe filter, a maximum pressure drop of 0.5 bar and the minimum back pressure of 2.0 bar are allowed. For all models using the Filtrex filter, a maximum pressure drop of 0.3 bar and the minimum back pressure of 1.5 bar are allowed.

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. Because the AMS 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 33CFR 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 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.

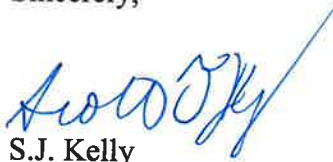
8. If the installed AMS does not operate properly when treating ballast water intended for discharge in U.S. waters, the person directing the movement of the vessel must ensure that the problem is reported to the nearest Coast Guard Captain of the Port (COTP) or District Commander as soon as practicable. The Coast Guard shall be notified of any treatment system or component failures, 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.
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 33CFR 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 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. 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