U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave. SE
Washington, DC 20593-7509
Staff Symbol: CG-OES
Phone: 202-372-1429
Fax: 202-372-8382
Email: Debbie.Duckworth@uscg.mil

5760
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Jiujiang Precision Measuring Technology Research Institute
Attn: Yongshu Yu
No. 83 Jiurui Avenue
Jiujiang, Jiangxi
China 332000

ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE – REVISION #2

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by Jiujiang Precision Measuring Technology Research Institute for the OceanDoctor ballast water treatment system (BWTS), as well as additional materials submitted with new type approval certificates issued by the China Classification Society (CCS) on behalf of the People's Republic of China. Two prior AMS acceptance letters, dated June 6, 2014 and December 5, 2014, correspond to earlier models of the OceanDoctor BWTS with varying treatment rated capacity (TRC) up to 5,000 cubic meters/hour (m^3/h). *This update is in response to the issuance of a revised type approval certificate for the OceanDoctor BWTS. This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for additional OceanDoctor models, as type approved and detailed in the CCS type approval (TA) certificate No. WH15T00050_02 issued on September 30, 2015.* This letter remains valid for the duration that AMS acceptance is authorized in accordance with 33 CFR §151.2026(c) unless the AMS determination has been suspended, withdrawn, or terminated.

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

- HBS-50 with a TRC of 55 m^3/hr;
- HBS-150 with a TRC of 165 m^3/hr;
- HBS-250 with a TRC of 275 m^3/hr;
- HBS-350 with a TRC of 385 m^3/hr;
- HBS-500 with a TRC of 550 m^3/hr;
- HBS-650 with a TRC of 650 m^3/hr;
- HBS-750 with a TRC of 750 m^3/hr;
- HBS-800 with a TRC of 800 m^3/hr;
- HBS-1000 with a TRC of 1,000 m^3/hr;
- HBS-1300 with a TRC of 1,300 m^3/hr;
- HBS-1500 with a TRC of 1,500 m^3/hr;
- HBS-1600 with a TRC of 1,600 m^3/hr;
- HBS-2000 with a TRC of 2,000 m^3/hr;

- HBS-2400 with a TRC of 2,400 m^3/hr;
- HBS-2500 with a TRC of 2,500 m^3/hr;
- HBS-3000 with a TRC of 3,000 m^3/hr;
- HBS-3200 with a TRC of 3,200 m^3/hr;
- HBS-4000 with a TRC of 4,000 m^3/hr;
- HBS-5000 with a TRC of 5,000 m^3/hr.

The OceanDoctor BWTS is assigned the following AMS identification number:

AMS-2016-Jiujiang OceanDoctor-001

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

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

1. The AMS manufacturer must comply with all general conditions of certification stipulated in the TA certificate issued by CCS under the authority of the Chinese government, 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 TA certificates 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:** The flow rate of ballast water through the system should not exceed the TRC for the installed OceanDoctor model. The maximum design flow rates or TRC values for all models are listed on the CCS TA certificate. The minimum flow rate for any OceanDoctor model is 60% of the TRC for that model. Visual and audio alarms will activate at the control panel(s) if the ballast water flow rate drops below 60% or rises above 110% of the TRC for the installed model. The control panel provides real-time and historical records of ballast flow rates.

   b. **Differential pressure across the filter:** The OceanDoctor BWTS is equipped with an automatic self-cleaning filter. The total pressure differential within the filter is determined by sensors that measure the pressure value at the filter outlet and the pressure value at the back flush valve outlet. The total pressure differential should not exceed 1.5 bar (0.15 MPa). The OeanDoctor BWTS is preset to automatically back flush when the pressure differential across the filter membrane exceeds 0.38 bar (0.038 MPa). Visual and audio alarms will alert at the control panel if the differential pressure across the filter membrane exceeds 0.50 bar (0.05 MPa). The control unit provides real-time and historical records of filter pressure differentials and associated alarms.

   c. **UV intensity, transmittance, and dosage:** The maximum UV dose for the OceanDoctor BWTS is specified on the CCS TA certificate as 360 milli-Joules per square centimeter (mJ/cm^2). The minimum permissible UV dose for this system is 220 mJ/cm^2. Two UV sensors within the UV reaction chamber are used to determine the existing UV light transmission levels under varying ballast water turbidity conditions. The OceanDoctor control unit and a flow control valve use input from the two UV sensors to adjust the ballast water flow rate within the UV chamber to account for fluctuations in UV light transmission levels caused by varying water turbidity conditions. This flow rate adjustment process ensures UV dose is maintained within the range specified in the TA certificate. Visual and audio alarms will activate at the control panel(s) if UV dose is not maintained within this range. The control unit provides real-time and historical records of UV dose values and associated alarms.

   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 OceanDoctor 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 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 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 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