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September 2, 2014

Shanghai Hengyuan Marine Equipment Company, Ltd.
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ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by Shanghai Hengyuan Marine Equipment Company, Ltd. for the Shanghai Hengyuan ballast water treatment system (BWTS). This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for one Shanghai Hengyuan BWTS model, as type approved by the China Classification Society (CCS) under the authority of the government of China and as detailed in CCS type approval (TA) certificates No. SH11T00284_01 and SH11T00284_02 issued on August 22, 2013 and expiring August 21, 2017.

The following Shanghai Hengyuan BWTS model is accepted for use as an AMS in U.S. waters:

- Model HY-BWMS-200 with a treatment rated capacity (TRC) of 200 cubic meters/hour (m^3/h).

The Shanghai Hengyuan BWTS is assigned the following AMS identification number:

AMS-2014-Shanghai Hengyuan-001

Coast Guard acceptance of the Shanghai Hengyuan 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.

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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 Shanghai Hengyuan BWTS as an AMS indicate that the BWTS meets requirements for Coast Guard type approval.

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

1. The AMS manufacturer must comply with all the general conditions of certification stipulated in the TA certificates issued by CCS under the authority of the government of China, as referenced above. Revocation of type approval by the approving authority will result in revocation of this 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 TA 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 this AMS should not exceed the treatment rated capacity (TRC) of 200 cubic meters per hour for the installed Shanghai Hengyuan HY-BWMS-200 model, as specified on the CCS type approval certificate. Higher flow rates can be obtained by installing treatment units in parallel. The minimum permissible flow rate for this AMS is 30% of the TRC for the installed system. A historical record of flow rate is available via readouts from the control panel.
 - b. **Differential pressure across the filter:** This AMS uses a self-cleaning 40 um mesh filter to remove debris, sediments, and larger organisms. A differential pressure of 0.02 MPa (0.20 bar) across the filters triggers an automatic back flush filter cleaning cycle. An alarm will alert at the control panel if high differential pressure across the filter reaches or exceeds 0.20 MPa (2.0 bar). If this high differential pressure across

the filter of 0.20 MPa (2.0 bar) persists after a cleaning cycle, then this ballast water treatment system will shut down. A historical record of filter pressure differentials can be obtained from readouts from the control panel.

- c. **UV intensity, transmittance, and dosage:** The Shanghai Hengyuan ballast water treatment system has a design maximum UV dose of 300 mJ/cm² and a design minimum UV dose of 200 mJ/cm². Operation of this BWTS at UV doses below 200 mJ/cm² will result in ballast water treatment that is not in accordance with the CCS type approval certificate. The UV dosage for this BWTS is adjusted through control circuitry that can vary power input to the UV lamps over a range from 14% to 100%. The system's programmable logic controller (PLC), working in conjunction with a UV intensity sensor in the UV reaction chamber, monitors and adjusts UV dosage under varying ballast water conditions. If the UV dose in the reaction chamber decreases below the minimum permissible dose of 200 mJ/cm², then the system's PLC will initiate an alarm at the control panel and the system will automatically increase power input to the UV lamps. If the UV dose remains below the minimum permissible dose after the UV lamps are adjusted to 100% power input, then this BWTS will automatically shut down. The UV dose can be read 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 Shanghai Hengyuan 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 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 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 33CFR 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-Shanghai Hengyuan-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

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