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: 202-372-1431
Fax: 202-372-8382
Email: John.A.Meehan@uscg.mil

5760

APR 15 2015

SAMKUN CENTURY Company, Ltd.
Attn: Mr. Min-Jae Lee
Research & Development Center
8F, 13, Geumgok – daero 285
Beon-gil, Buk-gu,
Busan
Republic of Korea

ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE – REVISION #1

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by SAMKUN CENTURY Company, Ltd. for the ARA PLASMA ballast water treatment system (BWTS). This letter, which is a revision to an AMS acceptance letter issued October 29, 2013, revises the minimum flow rates or treatment rated capacities (TRC) of all ARA Plasma models, as specified in type approval conformity test certificate number HDOBW-0001-15 issued by the Korean Registry on February 05, 2015 on behalf of the Korean Ministry of Oceans and Fisheries. This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for the following ARA PLASMA models:

- ARA-017, -028, -039, -063, -092, -126, -150, -190, -230, -250, -300 models and associated filter modules (in both horizontal and vertical configurations), as type approved by the Republic of Korea Ministry of Land, Transport, and Maritime Affairs and as detailed in the following 12 type approval certificates issued on 11 March 2013:

  -Certificate No. 2013-6 for the ARA-017
  -Certificate No. 2013-7 (No. 2012-7 on page 1) for the ARA-250
  -Certificate No. 2013-8 (No. 2012-8 on page 1) for the ARA-028
  -Certificate No. 2013-9 for the ARA-039
  -Certificate No. 2013-10 (No. 2012-10 on page 1) for the ARA-063
  -Certificate No. 2013-11 for the ARA-092
  -Certificate No. 2013-12 for the ARA-126
  -Certificate No. 2013-13 for the ARA-150
  -Certificate No. 2013-14 (No. 2012-14 on page 1) for the ARA 190
  -Certificate No. 2013-15 (No. 2012-15 on page 1) for the ARA 230
  -Certificate No. 2013-16 (No. 2012-16 on page 1) for the ARA 300.

APR 15 2015

The ARA PLASMA BWTSs are assigned the following AMS identification number:

AMS-2013-SAMKUN ARA PLASMA-001

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

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

1. The AMS manufacturer must comply with all general conditions of certification stipulated in the type approval certificates issued by or on behalf of the Government of Korea. 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
   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(s) of type approval 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 system. The minimum acceptable flow rate through the UV chamber is 10% of the treatment rated capacity (TRC) for the installed ARA PLASMA BWTS model. If the flow rate falls below this 10% minimum flow rate value, this BWTS will trigger alarms. If the flow rate falls below 5% of the TRC value, the system will enter fault mode and this BWTS will automatically shut down.

b. **Differential pressure across the filter**: The pressure differential across the filter should not exceed 1.6 bar. The ARA PLASMA BWTS is preset to automatically back flush the filters if the differential pressure across the filter reaches 0.6 bar. A warning alarm is actuated by the BWTS control unit if high differential pressure across the filter greater than 1.4 bar is detected and the system will automatically enter fault mode if high differential pressure across the filter greater than 1.6 bar is detected.

c. **UV dose**: The minimum acceptable UV dose for this BWTS, as determined by UV intensity measurements provided by a remote sensor located in the UV chamber, is 250 mJ/cm^2. If UV dose falls below 250 mJ/cm^2, an alarm will actuate. If UV dose falls below 240 mJ/cm^2, the system will enter fault mode and shut down, followed by conversion to manual control.

d. **Plasma Unit power level**: The Plasma Unit of this BWTS is designed to operate at a power level of 2.0 kW. The minimum acceptable power level for proper operation of the Plasma Unit is 1.2 kW. If the power level falls below this minimum level, a visual alert appears on the control panel monitor. If the Plasma Unit power level falls below 1.0 kW, the BWTS will trigger audible alarms and shut down automatically, followed by conversion to manual control.

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 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 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-2013-SAMKUN ARA PLASMA-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