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

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United States Coast Guard

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October 27, 2016

Trojan Technologies
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ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE – REVISION #2

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by Trojan Technologies for the Trojan Marinex ballast water treatment system (BWTS), as well as additional materials submitted with the new type approval certificate issued by Det Norske Veritas (DNV) on behalf of the Norwegian Maritime Directorate. Two prior AMS acceptance letters, dated July 21, 2014 and August 21, 2014, correspond to earlier models of the Trojan Marinex BWTS with varying treatment rated capacity (TRC) up to 1500 cubic meters/hour (m^3/h). *This revised letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for additional Trojan Marinex BWTS models, as detailed in DNV type approval certificate No.TAP000001C issued on July 8, 2016, and expiring June 30, 2018.*

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

- Models 150 or 150Ex with a TRC of 150 m^3/h;
- Models 250 or 250Ex with a TRC of 250 m^3/h;
- Models 500 or 500Ex with a TRC of 500 m^3/h;
- Models 750 or 750Ex with a TRC of 750 m^3/h;
- Models 1000 or 1000Ex with a TRC of 1,000 m^3/h;
- Models 1250 or 1250Ex with a TRC of 1,250 m^3/h;
- Models 1500 or 1500Ex with a TRC of 1,500 m^3/h.

The Trojan Marinex BWTS is assigned the following AMS identification number:

AMS-2016-Trojan Marinex-001

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

The following conditions apply for the operation of the Trojan Marinex AMS in U.S. waters:

1. The AMS manufacturer must comply with all the general conditions of certification stipulated in the TA certificate issued by DNV on behalf of the Norwegian Maritime Directorate, 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
   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 TRC for the installed Trojan Marinex model, as specified on the DNV type approval certificate. Several units can be installed in parallel for higher flow rates. The flow rates through individual treatment units must have flow control and arrangement must

be approved by DNV GL on a case by case basis. A historical record of flow rate is available via readouts from the control panel.

b. **Differential pressure across the filter:** The differential pressure operating range of the system is 0.1 to 0.25 bar. A sensor-detected differential pressure greater than 0.25 bar across the filter automatically initiates an automatic filter cleaning cycle. An alarm will alert at the control panel if differential pressure across the filter exceeds 0.25 bar after the completion of the automatic filter cleaning process. A historical record of filter pressure differentials can be obtained via readouts from the control panel.

c. **Operating pressure:** The maximum operating pressure of this AMS is 6.0 bar.

d. **UV intensity, transmittance, and dosage:** UV and power components that are permissible for use in the various models are listed in the TA certificate. The UV intensity of all Trojan Marinex AMS models has a design operational minimum of 2.0 mW/cm^2. The UV intensity of this system is measured via a UV sensor located within the UV reaction chamber. When the sensor-measured UV intensity in the UV reaction chamber drops and approaches the 2.0 mW/cm^2 permissible minimum level, the BWTS is equipped to trigger an automatic UV lamp cleaning apparatus that removes accumulated sediments from the UV lamps and the quartz lamp sleeves. If the low UV intensity condition is not resolved by the lamp cleaning process, an alarm will actuate at the control panel to alert the operator that operating conditions are not in accordance with the TA certificate. When this alarm actuates, the operator is instructed to stop the ballast water treatment process. UV intensity can be read via data readouts from the control panel.

e. **Inline Lamp Driver:** The Inline Lamp Driver provides power to the Trojan UV Solo Lamps and reports UV diagnostics data to the operator. The inline driver maximizes the UV lamp life by using surrounding air as a cooling source.

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. Salinity is not a limiting condition for the Trojan Marinex BWTS.

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