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April 28, 2017

MMC Green Technology AS
Attn: Børge Gjølseth
Sales and Marketing Director
Mjølstadneset
N-6992 Fosnavåg
Norway

ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE

The Coast Guard has completed its review of the materials submitted to revise the Alternate Management System (AMS) acceptance of the MMC Ballast Water Management System ballast water treatment system (BWTS) manufactured by MMC Green Technology AS (MMC). This letter grants AMS acceptance in accordance with the requirements of 33 CFR 151.2026 for the following MMC Ballast Water Management System models and filters as type approved by Det Norske Veritas (DNV) on behalf of the Norwegian Maritime Directorate and as detailed in the type approval certificate TAP00000WD, issued March 31, 2017. *This revised letter recognizes the renewed type approval for the following models listed in the certificate:*

The following MMC models, having the corresponding treatment rated capacity (TRC) in cubic meters/hour (m^3/hr), are accepted for use as an AMS in U.S. waters:

- MMC BWMS Model 50 with a 5 – 50 m^3/hr TRC;
- MMC BWMS Model 100 with a 10 – 100 m^3/hr TRC;
- MMC BWMS Model 150 with a 10 – 150 m^3/hr TRC;
- MMC BWMS Model 300 with a 10 – 300 m^3/hr TRC;
- MMC BWMS Model 370 with a 20 – 370 m^3/hr TRC;
- MMC BWMS Model 450 with a 30 – 450 m^3/hr TRC;
- MMC BWMS Model 500 with a 20 – 500 m^3/hr TRC;
- MMC BWMS Model 600 with a 20 – 600 m^3/hr TRC;
- MMC BWMS Model 750 with a 40 – 750 m^3/hr TRC;
- MMC BWMS Model 1000 with a 40 – 1,000 m^3/hr TRC;
- MMC BWMS Model 1400 with a 40 – 1,400 m^3/hr TRC;

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The MMC BWTSs are assigned the following AMS identification number:

AMS-2017-MMC BWTS-001

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

The following conditions apply for the operation of the MMC 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 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:

Environmental Standards Division (CG-OES-3)
U.S. Coast Guard Headquarters
U.S. 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. Salinity or temperature are not limiting conditions for the ballast water treatment system.
3. 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.
4. 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

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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 MMC BWTS has a ballast water flow rate maximum capacity of 150 cubic meters per hour for Model 150 and 300 cubic meters per hour for Model 300. Treatment rated capacities (TRC) greater than 300 cubic meters per hour are achieved by connecting additional MMC Ballast Water Management System ultraviolet light (UV) chambers in parallel during installation on a vessel, as described in the type approval certificate. Installations employing two or more MMC BWTS UV chambers connected in parallel must be reviewed and approved on a case-by-case basis by DNV.
- b. **UV intensity:** This system is designed to operate at UV intensities of 100 milliJoules per centimeter squared (mJ/cm^2) and above. UV intensities below $100 \text{ mJ}/\text{cm}^2$, as measured at the sensor in the UV chamber, will trigger an alarm/warning at the control panel. UV intensities below $100 \text{ mJ}/\text{cm}^2$ are not capable of treating ballast water in accordance with the performance standards referenced in the type approval certificate.
- c. **Differential pressure across the filter:** The pressure differential across the filter should not exceed 1.0 bar. The MMC BWTS is set to back flush automatically at 0.30 bar pressure differential. A warning notice appears on the control panel when excessively high differential pressure across the filter (>1.0 bar) is detected. The system will shut down if greater than 1.0 bar differential pressure across the filter is detected for a period exceeding 60 seconds.

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.

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.

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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 (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:

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- a. Report the number of tanks treated by the AMS in the space labeled "Underwent Alternative Management";
- b. Report the AMS identification number, located toward the beginning of this letter and in bolded text, in the space labeled "Please specify alternative method(s) used, if any," and;
- c. 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 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