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August 9, 2017

Wärtsilä Water Systems, Ltd.  
Attn: Joe Thomas  
Director, Ballast Water Management Solutions  
Fleets Corner, Poole  
Dorset BH17 OJT  
England

#### ALTERNATE MANAGEMENT SYSTEM ACCEPTANCE

The Coast Guard has completed its review of the Alternate Management System (AMS) application submitted by Wärtsilä Water Systems, Ltd. for the AQUARIUS UV and UVX ballast water treatment system (BWTS). This letter grants AMS acceptance in accordance with the requirements of Title 33 of the Code of Federal Regulations (CFR), Section 151.2026 for the AQUARIUS UV and UVX models that have been type approved by the Netherlands Ministry of Infrastructure and the Environment as described in type approval certificate No. 8328/2017 issued July 13, 2017. Accordingly, the following Aquarius models, using mechanical filtration and ultraviolet radiation, with the following treatment rated capacity (TRC) expressed in cubic meters per hour ( $m^3/hr$ ), are accepted for use as an AMS in U.S. waters:

- AQ-50-UV and AQ-50-UVX with a TRC of 50  $m^3/h$ ;
- AQ-80-UV and AQ-80-UVX with a TRC of 80  $m^3/h$ ;
- AQ-125-UV and AQ-125-UVX with a TRC of 125  $m^3/h$ ;
- AQ-180-UV and AQ-180-UVX with a TRC of 180  $m^3/h$ ;
- AQ-250-UV and AQ-250-UVX with a TRC of 250  $m^3/h$ ;
- AQ-300-UV and AQ-300-UVX with a TRC of 300  $m^3/h$ ;
- AQ-375-UV and AQ-375-UVX with a TRC of 375  $m^3/h$ ;
- AQ-430-UV and AQ-430-UVX with a TRC of 430  $m^3/h$ ;
- AQ-500-UV and AQ-500-UVX with a TRC of 500  $m^3/h$ ;
- AQ-550-UV and AQ-550-UVX with a TRC of 550  $m^3/h$ ;
- AQ-750-UV and AQ-750-UVX with a TRC of 750  $m^3/h$ ;
- AQ-850-UV and AQ-850-UVX with a TRC of 850  $m^3/h$ ; and
- AQ-1000-UV and AQ-1000-UVX with a TRC of 1,000  $m^3/h$ .

The AQUARIUS UV and UVX models may be combined to achieve a TRC of up to 6,000  $m^3/h$  by using multiple units in parallel.

The AQUARIUS UV and UVX BWTSs are assigned the following AMS identification number:

**AMS-2017-Wartsila AQUARIUS UV/UVX-001**

Coast Guard acceptance of the AQUARIUS UV and UVX 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 AQUARIUS UV and UVX BWTS as an AMS indicate that the BWTS meets requirements for Coast Guard type approval.

The following conditions apply for the operation of the AQUARIUS UV and UVX 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 the Netherlands Ministry of Infrastructure and the Environment, 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  
Tel: 202-372-1402  
e-mail: [environmental\\_standards@uscg.mil](mailto: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 of type approval 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 treatment rated capacity (TRC) for the installed system. Ballast flow rates of up to 6,000 cubic meters per hour may be treated by using multiple AQUARIUS UV and UVX BWTS units installed in parallel. The minimum acceptable flow rate through the UV chamber is 10% of the TRC for the installed AQUARIUS UV and UVX BWTS model. If the flow rate falls below 10% of TRC, the system is designed to trigger alarms and automatically shutdown.
- b. **Differential pressure across the filter:** The pressure differential across the filter should not exceed 0.5 bar. The AQUARIUS UV and UVX BWTS are preset to automatically back flush if the differential pressure across the filter reaches 0.5 bar, and a warning alarm is sounded by the control system if high differential pressure across the filter (greater than 0.5 bar) remains after 20 back flush cycles.
- c. **UV intensity:** The UV intensity sensor located in the UV chamber should always transmit a reading of 70% or greater of the full calibrated irradiance level for the selected operating power level. If the UV intensity falls below this 70% level at selected lower power settings, the AQUARIUS UV and UVX BWTS are designed to automatically switch to the “high” power setting. If UV intensity falls below the 70% level at the “high” power setting, audible and visual alarms will be activated at the control panel.

*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. 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.
5. 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.
6. 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](mailto: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.

7. 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.
8. 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.
9. 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 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](mailto:Debbie.Duckworth@uscg.mil).

Sincerely,



S.J. KELLY

Captain, U.S. Coast Guard

Office of Operating and Environmental Standards