



U. S. Department of Homeland Security  
**United States Coast Guard**  
**Certificate of Approval**

Coast Guard Approval Number: 162.050/9017/0

Expires: 24 September 2024

OIL POLLUTION PREVENTION EQUIPMENT

The following device has been tested in accordance with IMO Resolution MEPC.107(49)

RIVERTRACE LIMITED  
UNIT P KINGSFIELD BUSINESS CENTRE  
PHILANTHROPIC ROAD  
REDHILL SURREY RH1 4DP UNITED KINGDOM

Model: SMART-BILGE 15 ppm bilge alarm

Equipment manufactured by Rivertrace Limited to drawing no. 109067 Rev. A4, dated July 14, 2004, drawing no. 109073 Rev. A3, dated July 23, 2004, drawing no. 109069 Rev. A3, dated October 28, 2004, and drawing no. 109071 Rev. A3, dated July 14, 2004.

This device has been tested in accordance with IMO Resolution MEPC.107(49).

A copy of this certificate should be carried aboard a vessel fitted with this equipment at all times.

Test data and results attached in the appendix.

This certificate documents compliance with 46 CFR 162.050.

\*\*\* End \*\*\*

THIS IS TO CERTIFY THAT the above named manufacturer has submitted to the undersigned satisfactory evidence that the item specified herein complies with the applicable laws and regulations as outlined on the reverse side of this Certificate, and approval is hereby given. This approval shall be in effect until the expiration date hereon unless sooner canceled or suspended by proper authority.

GIVEN UNDER MY HAND THIS 24<sup>th</sup> DAY OF  
SEPTEMBER 2019, AT WASHINGTON D.C.

J. J. MIN  
Chief, Engineering Division  
BY DIRECTION OF THE COMMANDANT



**TERMS:** The approval of the item described on the face of the Certificate has been based upon the submittal of satisfactory evidence that the item complies with the applicable provisions of the navigation and shipping laws and the applicable regulations in Title 33 and/or Title 46 of the Code of Federal Regulations. The approval is subject to any conditions noted on this Certificate and in the applicable laws and regulations governing the use of the item on vessels subject to Coast Guard inspection or on other vessels and boats.

Consideration will be given to an extension of this approval provided application is made 3 months prior to the expiration date of this Certificate.

The approval holder is responsible for making sure that the required inspections or tests of materials or devices covered by this approval are carried out during production as prescribed in the applicable regulations.

The approval of the item covered by this certificate is valid only so long as the item is manufactured in conformance with the details of the approved drawings, specifications, or other data referred to. No modification in the approved design, construction, or materials is to be adopted until the modification has been presented for consideration by the Commandant and confirmation received that the proposed alteration is acceptable.

**NOTICE:** Where a manufacturer of safety-at-sea equipment is offering for sale to the maritime industry, directly or indirectly, equipment represented to be approved, which fails to conform with either the design details or material specifications, or both, as approved by the Coast Guard, immediate action may be taken to invoke the various penalties and sanctions provided by law including prosecution under 46 U.S.C. 3318, which provides:

"A person that knowingly manufactures, sells, offers for sale, or possesses with intent to sell, any equipment subject to this part (*Part B. of Subtitle II of Title 46 U.S.C.*) and the equipment is so defective as to be insufficient to accomplish the purpose for which it is intended, shall be fined not more than \$10,000, imprisoned for not more than 5 years or both."

**APPENDIX**

**U. S. Coast Guard Approval Number: 162.050/9017/0**

**Expires: 24 September 2024**

**TEST DATA AND RESULTS OF TESTS CONDUCTED ON A 15 PPM BILGE  
ALARM IN ACCORDANCE WITH THE GUIDELINES AND SPECIFICATIONS CONTAINED  
IN IMO RESOLUTION MEPC.107(49)**

15 ppm Bilge Alarm submitted by:

Rivertrace Limited

Test location:

Tei-Testing Services  
3455 South 500 West  
Salt Lake City, UT 84115-4234

Method of sample analysis:

ISO 9377-2-2000

Samples analyzed by:

Tei-Testing Services  
3455 South 500 West  
Salt Lake City, UT 84115-4234

Environmental testing of the electrical and electronic sections of the 15 ppm Bilge Alarm has been carried out in accordance with the guidelines and specifications contained in IMO resolution MEPC.107(49). The equipment functioned satisfactorily on completion of each test specified on the environmental test protocol.

**Calibration Test and Response Time Test**

	"A"		"B"		"C"	
	Measured	Grab	Measured	Grab	Measured	Grab
0 ppm	0.0	< 0.5	0.0	< 0.5	0.0	< 0.5
15 ppm	16.2	19.5	14.8	16.8	16.4	18.8
Full Scale	29.5	28.6	29.2	34.0	28.3	32.1
Water Temperature	26.5°C		27.2°C		24.0°C	
Re-zero	No		No		No	
Recalibrate	No		No		No	
Response Time (seconds)	1.5		1.7		1.5	

**Contamination and Color Test**

	Oil Content Meter Reading
Clean Water and Test Fluid "B" at 10 ppm	9.9 ppm
Very Salt Water and Test Fluid "B" at 10 ppm	7.1 ppm
Iron Oxide at 10 ppm	9.9 ppm
Iron Oxide at 50 ppm	8.5 ppm
Iron Oxide at 100 ppm	8.5 ppm

**Sample Pressure or Flow Test**

15 ppm Bilge Alarm reading shift at 50% of normal	13.2 ppm
15 ppm Bilge Alarm reading shift at 200% of normal	12.9 ppm
Deviations:	No deviations to the test method were made.

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Shut Off Test

15 ppm Bilge Alarm reading before shut off	14.0 ppm
15 ppm Bilge Alarm reading after shut off	15.3 ppm
Damage to 15 ppm Bilge Alarm:	No damage was caused by this test to the 15 ppm Bilge Alarm.

Utilities Supply Variation Test

110% Voltage Effects	There was no change in the Bilge Alarm reading.
90% Voltage Effects	There was no change in the Bilge Alarm reading.
110% Air Pressure Effects	Not Applicable.
90% Air Pressure Effects	Not Applicable.
110% Hydraulic Pressure Effects	Not Applicable.
90% Hydraulic Pressure Effects	Not Applicable.

Calibration and Zero Drift Test

Calibration Drift	0.1 ppm
Zero Drift	0.0 ppm

Diagram of test rig attached.

Diagram of sampling arrangement attached.

\*\*\* END \*\*\*