Rpt. 5a.

REPORT ON BOILERS.

No. 22995

Received at London Office DEC 17 1938

Date of writing Report 12th Dec. 1938. When handed in at Local Office ____ 19__ Port of HAMBURG

No. in Reg. Book. 76490 Survey held at HAMBURG Date, First Survey 1st Septemb. Last Survey 5th Dec. 1938. (Number of Visits 14)

on the Steel Single Screw Motor Tanker **INVERILEN** Tons Gross 9456 Net 5561.

Master ____ Built at HAMBURG By whom built Deutsche Werft A.G. Yard No. 204 When built 1938

Engines made at Augsburg By whom made Maschinenfabrik Augsburg-Nürnberg Engine No. 690190 When made 1938

Boilers made at HAMBURG By whom made Deutsche Werft A.G. Boiler No. 683+684 When made 1938

Nominal Horse Power 1000 Owners Inver Tankers Ltd Port belonging to Dublin

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MULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR~~ DONKEY.

Manufacturers of Steel Plates: Gutehoffnungshütte A.G. Abt. Walzwerk Oberhausen (Letter for Record S.)

Total Heating Surface of Boilers each 150 sq. metres Is forced draught fitted yes Coal or Oil fired oil fired

No. and Description of Boilers two single ended multitubular donkey boilers **Working Pressure** 180 lbs

Tested by hydraulic pressure to 320 lbs Date of test 7.10.38 No. of Certificate 708, 709. Can each boiler be worked separately yes

Area of Firegrate in each Boiler – No. and Description of safety valves to each boiler each boiler two double-spring loaded safety valves

Area of each set of valves per boiler { per Rule 6644 mm² / as fitted 8836 mm² } Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler –

Smallest distance between boilers ~~or uptakes and~~ bunkers ~~or woodwork~~ 900 mm Is oil fuel carried in the double bottom under boilers boilers in tweendeck

Smallest distance between shell of boiler and ~~tank top~~ tweendeck plating 450 mm Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 3600 mm Length 3198 mm **Shell plates:** Material S-M-Steel Tensile strength 47-53 kg/mm²

Thickness 24 mm Are the shell plates welded or flanged flanged, double butt strap Description of riveting: circ. seams { end double row, zigzag / inter. – }

long. seams treble row, double butt strapped Diameter of rivet holes in { circ. seams 29 mm / long. seams 29 mm } Pitch of rivets { 94.8 mm / 185 mm }

Percentage of strength of circ. end seams { plate 69.4 % / rivets 44.5 % } Percentage of strength of circ. intermediate seam { plate – / rivets – }

Percentage of strength of longitudinal joint { plate 84.3 % / rivets 106.8 % / combined 90.02 % } Working pressure of shell by Rules 12.84 kg/cm²

Thickness of butt straps { outer 24 mm / inner 24 mm } **No. and Description of Furnaces in each Boiler** two corrugated furnaces (Morison type)

Material S-M-Steel Tensile strength 41-47 kg/mm² Smallest outside diameter 1026 mm

Length of plain part { top 190 mm / bottom 240 mm } Thickness of plates { crown / bottom } 13 mm Description of longitudinal joint watergas lapwelded

Dimensions of stiffening rings on furnace or c.c. bottom – Working pressure of furnace by Rules 12.84 kg/cm²

End plates in steam space: Material S-M-Steel Tensile strength 41-47 kg/mm² Thickness 24 mm Pitch of stays 400 x 400 mm

How are stays secured washers and strips riveted to shell, nuts inside and outside Working pressure by Rules 14.5 kg/cm²

Tube plates: Material { front S-M-Steel / back S-M-Steel } Tensile strength { 41-47 kg/mm² / 41-47 kg/mm² } Thickness { 24 mm / 22 mm }

Mean pitch of stay tubes in nests 312 x 312 mm Pitch across wide water spaces 360 mm Working pressure { front 16.4 kg/cm² / back 17.9 kg/cm² }

Girders to combustion chamber tops: Material S-M-Steel Tensile strength 47-53 kg/mm² Depth and thickness of girder

at centre 200 mm, 2 x 14 mm Length as per Rule 658.6 mm Distance apart 210 mm No. and pitch of stays

in each 2, 200 mm Working pressure by Rules 15.7 kg/cm² **Combustion chamber plates:** Material S-M-Steel

Tensile strength 41-47 kg/mm² Thickness: Sides 16 mm Back 19 mm Top 16 mm Bottom 24 mm

Pitch of stays to ditto: Sides 200 x 200 mm Back 205 x 200 mm Top 210 x 200 mm Are stays fitted with nuts or riveted over in nests riveted over margin stays with nuts

Working pressure by Rules 15.6 - 15.5 - 14.8 kg/cm² **Front plate at bottom:** Material S-M-Steel Tensile strength 41-47 kg/mm²

Thickness 24 mm **Lower back plate:** Material S-M-Steel Tensile strength 41-47 kg/mm² Thickness 24 mm

Pitch of stays at wide water space 1 main stay, pitch diam. 525 mm Are stays fitted with nuts or riveted over doubling plates riveted to end plate nuts inside and outside.

Working Pressure 14.2 kg/cm² **Main stays:** Material S-M-Steel Tensile strength 41-47 kg/mm²

Diameter { At body of stay, 62.58 mm / or Over threads 68.0 mm } No. of threads per inch 6 Area supported by each stay 16 0000 mm²

Working pressure by Rules 13.77 kg/cm² **Screw stays:** Material S-M-Steel Tensile strength 41-47 kg/mm²

Diameter { At turned off part, 35.38 mm / or Over threads 39.0 mm } No. of threads per inch 9 Area supported by each stay 205 x 200 = 41000 mm²

Working pressure by Rules 16.67 kg/cm² Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part. 44,38 - 38.38 mm / or Over threads 48.0 - 42.0 mm

No. of threads per inch 9 ✓ Area supported by each stay 283 x 200 = 56600 mm² / 360 x 205 = 73800 mm² Working pressure by Rules 12.7 - 13.3 kg/cm²

Tubes: Material S-M-Steel External diameter { Plain 76 mm ✓ / Stay 76 mm ✓ } Thickness { 3.75 mm ✓ / 8 + 11 mm ✓ } No. of threads per inch 9 ✓

Pitch of tubes 106 x 104 mm ✓ Working pressure by Rules 14.9 kg/cm² ✓ **Manhole compensation:** Size of opening in shell plate 300 x 400 mm Section of compensating ring 2 x 24 x 200 ✓ No. of rivets and diameter of rivet holes 32 - 29 mm ✓

Outer row rivet pitch at ends 112 mm Depth of flange if manhole flanged - **Steam Dome:** Material S-M-Steel ✓

Tensile strength 41-47 kg/mm² Thickness of shell 14 mm Description of longitudinal joint oxy-acetelene welded, secured by straps

Diameter of rivet holes 26 mm ✓ Pitch of rivets 84 mm ✓ Percentage of strength of joint { Plate / Rivets } welding 60 % ✓

Internal diameter 800 mm ✓ Working pressure by Rules 16.5 kg/cm² ✓ Thickness of crown 16 mm No. and diameter of stays - Inner radius of crown 640 mm Working pressure by Rules 16.5 ✓ kg/cm²

How connected to shell pressed flange, riveted to shell Size of doubling plate under dome - Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell 29 mm - 202 mm ✓ ✓.

Type of Superheater Manufacturers of { Tubes / Steel forgings / Steel castings }

Number of elements Material of tubes Internal diameter and thickness of tubes

Material of headers Tensile strength Thickness Can the superheater be shut off and the boiler be worked separately Is a safety valve fitted to every part of the superheater which can be shut off from the boiler

Area of each safety valve Are the safety valves fitted with easing gear Working pressure as per Rules Pressure to which the safety valves are adjusted Hydraulic test pressure: tubes forgings and castings and after assembly in place Are drain cocks or valves fitted to free the superheater from water where necessary.

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with yes.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops - - } Sept. 1, 15, 17, 20 Oct. 1, 5, 7, 12 { During erection on board vessel - - - } Oct. 8, 25, 28, Nov. 18, 28, Dec. 5. Are the approved plans of boiler and superheater forwarded herewith 17.2.36. (If not state date of approval.) Total No. of visits 14

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No.

ELEONORE MAERSK	Hamburg	Rep.	No. 22166
HOEGH GIANT	"	"	" 22252
INVERLIFFEY	"	"	" 22830
INVERDARGLE	"	"	" 22865
INVERSUIR	"	"	" 22970

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

Material and workmanship of these donkey boilers are of good quality. The materials used in their construction are made at works recognised by the Committee and tested by the Society's Surveyors in accordance with the requirements of the Rules.

These donkey boilers having been made under Special Survey in conformity with the approved plan, the Secretary's letter and otherwise in compliance with the requirements of the Rules are eligible in my opinion to be classed with notation in the Register Book:

Two Donkey Boilers - 180 lbs/sq. inch pressure.

Thickness of adjusting washers of safety valves Port boiler - port: 24.5 mm stbd: 24.5 mm
Stbd boiler port: 20.0 mm stbd: 21.1 mm.

Survey Fee ... ... £ RM: 432: - When applied for, 10. 12. 1938
Travelling Expenses (if any) £ : : When received, 10. 1. 1939

H. Röhrs

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 20 DEC 1938

Assigned See Ham. F.E. 22995