Rpt. 5a.

REPORT ON BOILERS.

No. 10,379

Received at London Office 27 MAY 1930

Date of writing Report 192 When handed in at Local Office 26 May 1930 Port of Belfast

visits included in F.E. mchy rpt.

No. in Reg. Book. Survey held at Belfast Date, First Survey Last Survey 192

on the Steel Sc. "CITY OF SYDNEY" (Number of Visits) Tons Gross Net

Master Built at Belfast By whom built Harland & Workman Clark (1928) Ltd Yard No. 504 When built 1930

Engines made at Belfast By whom made Harland & Workman Clark (1928) Ld. Engine No. 504 When made 1930.

Boilers made at Belfast By whom made Harland & Workman Clark (1928) Ld. Boiler No. 504 When made 1930.

Nominal Horse Power 1061·7 Owners Ellerman Lines Ltd. Port belonging to Liverpool.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Witkowitzer Bergbau- und Eisenhütten-Gewerkschaft in Witkowitz (Letter for Record S)

Total Heating Surface of Boilers 11448 ☐' Is forced draught fitted yes. Coal or Oil fired Both.

No. and Description of Boilers Three main & One auxiliary S.E. cyl. 4 SB **Working Pressure** 265 lb.

Tested by hydraulic pressure to 448 lb. Date of test 24.10.29 No. of Certificate 940 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 71·5 ☐' No. and Description of safety valves to each boiler 2 - 2¾" C. Steel Improved H. Lift 1 - 2" Single C.S. Improved H. Lift

Area of each set of valves per boiler per Rule 15·3 ☐" as fitted 7·952 ☐" Pressure to which they are adjusted 265 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 2'-0" Is oil fuel carried in the double bottom under boilers yes.

Smallest distance between shell of boiler and tank top plating 2'-0" Is the bottom of the boiler insulated yes.

Largest internal dia. of boilers 15'-9" Length 12'-6" **Shell plates:** Material Steel Tensile strength 31-35 Tons

Thickness 1 29/32" Are the shell plates welded or flanged no Description of riveting: circ. seams end Double inter. —

long. seams T.R. Butt Straps Diameter of rivet holes in circ. seams 1¾" long. seams 1¾" Pitch of rivets 4·04" 11"

Percentage of strength of circ. end seams plate 56·8 rivets 51·3 Percentage of strength of circ. intermediate seam plate — rivets —

Percentage of strength of longitudinal joint plate 84·09 rivets 88·5 combined 85·4 Working pressure of shell by Rules 266. lbs ☐" (266)

Thickness of butt straps outer 1⅜" inner 1½" **No. and Description of Furnaces in each Boiler** four Deighton 4 C.F.

Material Steel Tensile strength 26-30 Tons Smallest outside diameter 39 7/16"

Length of plain part top — bottom — Thickness of plates crown bottom 23/32" Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 267·7 lb. ☐"

End plates in steam space: Material Steel Tensile strength 26-30 Tons Thickness 1 5/16" Pitch of stays 19"×15"

How are stays secured D.N. Working pressure by Rules 275·4 lb. ☐"

Tube plates: Material front back Steel Tensile strength 26-30 Tons Thickness 1 1/32" 15/16"

Mean pitch of stay tubes in nests 10½" Pitch across wide water spaces 14" Working pressure front 279·2 lb. back 265 lb.

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 Tons Depth and thickness of girder at centre 11"×1⅝" Length as per Rule 37 11/32" Distance apart 7¾" No. and pitch of stays in each 3-8"

Working pressure by Rules 275·9 lb. **Combustion chamber plates:** Material Steel

Tensile strength 26-30 Tons Thickness: Sides 23/32" Back ¾" Top 23/32" Bottom ⅞"

Pitch of stays to ditto: Sides 8⅜"×7½" Back 8"×7⅝" Top 7¾"×8" Are stays fitted with nuts or riveted over Both

Working pressure by Rules 268·5 lb. **Front plate at bottom:** Material Steel Tensile strength 26-30 Tons

Thickness 1 1/32" **Lower back plate:** Material Steel Tensile strength 26-30 Tons Thickness 31/32"

Pitch of stays at wide water space 14½"×8" Are stays fitted with nuts or riveted over nuts

Working Pressure 282 lb. **Main stays:** Material Steel Tensile strength 28-32 Tons

Diameter At body of stay, or Over threads 3¼" No. of threads per inch six Area supported by each stay 285 ☐"

Working pressure by Rules 282 lb. **Screw stays:** Material Steel Tensile strength 26-30 Tons

Diameter At turned off part, or Over threads 1¾" 1⅝" No. of threads per inch nine Area supported by each stay 63·75 & 55·73

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Working pressure by Rules 285 - 275 Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part. / Over threads 2" 13/4" /

No. of threads per inch nine Area supported by each stay 90 □" Working pressure by Rules 275 lb.

Tubes: Material Iron External diameter { Plain 3" / Stay 3" / Thickness { No 8 w.g. / 3/8" 5/16" / No. of threads per inch nine

Pitch of tubes 4 1/4" × 4 1/8" / Working pressure by Rules Plain 280 Stay 291 lb. **Manhole compensation:** Size of opening in

shell plate 15 1/4" × 19 3/4" / Section of compensating ring 38 1/4" × 36" × 1 5/8" / No. of rivets and diameter of rivet holes 36 - 1 3/4"

Outer row rivet pitch at ends 11 / Depth of flange if manhole flanged 3 1/4" **Steam Dome:** Material —

Tensile strength Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint { Plate / Rivets

Internal diameter Working pressure by Rules Thickness of crown No. and diameter of

stays Inner radius of crown Working pressure by Rules

How connected to shell Size of doubling plate under dome Diameter of rivet holes and pitch

of rivets in outer row in dome connection to shell

Type of Superheater N. E. marine Manufacturers of { Tubes / Steel castings

Number of elements 56 in each bk Material of tubes S O Steel. Internal diameter and thickness of tubes 14 m/m. 2.5 m/m.

Material of headers Mild Steel. Tensile strength Thickness 1/8" / Can the superheater be shut off and

the boiler be worked separately yes. Is a safety valve fitted to every part of the superheater which can be shut off from the boiler yes.

Area of each safety valve 3.1410". / Are the safety valves fitted with easing gear yes. / Working pressure as per

Rules Pressure to which the safety valves are adjusted 270 lbs 0". / Hydraulic test pressure:

tubes , castings and after assembly in place 530 lbs 0". Are drain cocks or valves fitted

to free the superheater from water where necessary yes. /

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with yes!

The foregoing is a correct description,
FOR WORKMAN CLARK (1928) LIMITED:
F. Cunningham Secretary
Manufacturer.

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith
while building { During erection on board vessel - - - } (If not state date of approval.)

Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers were constructed under special survey to an approved design. The materials and workmanship are good. They were subjected to hydraulic test in accordance with the Rules and were efficiently fastened on board the vessel. The safety valves were adjusted to 265 lbs 0" under steam.

Survey Fee ... ... £ See Machinery Report. When applied for, 192

Travelling Expenses (if any) £ When received, 192

John. K. Williams.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 6 JUN 1930

Assigned See Rpt. attached