

REPORT ON MACHINERY.

Port of WEST HARTLEPOOL

No. in Survey held at Hartlepool Date, first Survey 15th Sept 1902 Last Survey 24th April 1903
 Reg. Book. on the Steel S.S. Sirius (Number of Visits 78)
 Master Morell Built at Hartlepool By whom built Irvine & S. B. D. B. Ltd. Tons { Gross 1385.92
 Engines made at Hartlepool By whom made Richardsons Westgarth & Co. Ltd. Net 818.13
 Boilers made at Hartlepool By whom made do When built 1903
 Registered Horse Power 160 Owners Hugfortyp Aktieselskab Sirius when made 1903
 Com. Horse Power as per Section 28 160 Is Refrigerating Machinery fitted No Port belonging to Rothenburg
 Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders Three No. of Cranks Three
 Dia. of Cylinders 19" 31" 51" Length of Stroke 36" Recs. per minute 65 Dia. of Screw shaft as per rule 11 1/2" as fitted 11 1/2" Lgth. of stern bush 3'-10"
 Dia. of Tunnel shaft as per rule 9 1/2" Dia. of Crank shaft journals as per rule 9 1/2" as fitted 9 1/2" Dia. of Crank pin 10" Size of Crank webs 6 1/2" x 15" Dia. of thrust shaft under
 lars 10 1/2" Dia. of screw 13'-9" Pitch of screw 15'-6" No. of blades 4 State whether moveable No Total surface 59 sq. ft.
 of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 21" Can one be overhauled while the other is at work Yes
 of Bilge pumps 2 Diameter of ditto 3 1/4" Stroke 21" Can one be overhauled while the other is at work Yes
 of Donkey Engines 2 Sizes of Pumps 4" x 6" duplex Ballast No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room Three 2 1/2" dia In Holds, &c. Sip. — One 2 1/2" dia. to fore peak;
no. 2 1/2" dia to No. 1 hold; Two 2 1/2" dia. to Aft hold; & One 2 1/2" dia. to Aft well.
 of bilge injections one size 4" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes 2 1/2"
 all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible none
 all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both
 they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the discharge pipes above or below the deep water line above
 they each fitted with a discharge valve always accessible on the plating of the vessel Yes Are the blow off' cocks fitted with a spigot and brass covering plate Yes
 at pipes are carried through the bunkers none How are they protected Yes
 all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes
 were stern tube, propeller, screw shaft, and all connections examined in dry dock 22.4.03 Is the screw shaft tunnel watertight Yes
 fitted with a watertight door Yes worked from upper platform

BOILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 2462 sq. ft. Is forced draft fitted No
 and Description of Boilers One single ended. bay. Mult. Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.
 of test 23.12.02 Can each boiler be worked separately Yes Area of fire grate in each boiler 55 sq. ft. No. and Description of safety valves to
 boiler Two Spring direct. Area of each valve 8.29 sq. in. Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear Yes
 at distance between boilers or uptakes and bunkers or woodwork 40" Mean dia. of boilers 15'-9 1/2" Length 10'-6" Material of shell plates steel
 ess 15 1/2" Range of tensile strength 28-32 Are they welded or flanged No Descrip. of riveting: cir. seams double long. seams treble
 er of rivet holes in long. seams 1 3/16" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 19 1/2"
 tages of strength of longitudinal joint rivets 84.6 Working pressure of shell by rules 160 lbs. Size of manhole in shell 13" x 16 1/2"
 compensating ring 29" x 30" x 1 1/2" No. and Description of Furnaces in each boiler 3 Plain Material steel Outside diameter 48"
 of plain part top 6'-4" Thickness of plates crown 3/4" Description of longitudinal joint weld No. of strengthening rings 1
 bottom 6'-4" Thickness of plates bottom 3/4" Working pressure of furnace by the rules 160 lbs. Combustion chamber plates: Material steel Thickness: Sides 19 1/32" Back 19 1/32" Top 19 1/32" Bottom 15 1/16"
 7 pressure of furnace by the rules 160 lbs. Stays to ditto: Sides 8 1/2" x 8 1/2" Back 8 1/2" Top 8 1/2" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 160 lbs.
 l of stays steel Diameter at smallest part 1 1/8" Area supported by each stay 72 sq. in. Working pressure by rules 160 lbs. End plates in steam space:
steel Thickness 15 1/16" Pitch of stays 16 1/2" x 15 1/2" How are stays secured by nuts Working pressure by rules 160 lbs. Material of stays steel
 at smallest part 2 1/8" Area supported by each stay 260 sq. in. Working pressure by rules 160 lbs. Material of Front plates at bottom steel
1/8" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 12 1/2" Working pressure of plate by rules 165 lbs.
 of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 15 1/16" Back 3/4" Mean pitch of stays 9"
 cross wide water spaces 14 1/2" Working pressures by rules 166 lbs. Girders to Chamber tops: Material steel Depth and
 of girder at centre 7 1/2" x 13 1/4" Length as per rule 31' Distance apart 8 1/2" Number and pitch of Stays in each Two 8 1/2"
 pressure by rules 166 lbs. Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked
 Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
 Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
 pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

DONKEY BOILER— No. *one* Description *Blakes Patent*
Made at *Middlesbrough* By whom made *Richardsons Westgarth & Co.* When made *22-11-02* Where fixed *Stoke hold.*
Working pressure *80lb.* tested by hydraulic pressure to *160lb.* No. of Certificate *2849* Fire grate area *14 sq. ft.* Description of safety valves *Spring direct.*
No. of safety valves *2* Area of each *5.94 sq. ft.* Pressure to which they are adjusted *85lb.* If fitted with easing gear *Yes.* If steam from main boilers can enter the donkey boiler *No.* Dia. of donkey boiler *6'-0"* Length *13'-6"* Material of shell plates *steel* Thickness *1 1/2"* Range of tensile strength *27-32* Descrip. of riveting long. seams *D. R. lap.* Dia. of rivet holes *1 1/2"* Whether punched or drilled *drilled* Pitch of rivets *2 3/4"*
Lap of plating *4 1/2"* Per centage of strength of joint *90-4* Rivets *79* Thickness of shell crown plates *1 1/2"* Radius of do. *Hemi.* No. of Stays to do. *✓*
Dia. of stays *✓* Diameter of furnace Top *2'-9"* Bottom *4'-6"* Length of furnace *4'-1"* Thickness of furnace plates *1 1/2"* Description of joint *L. R. lap.* Thickness of furnace crown plates *Top 5/8" Bottom 3/4"* Stayed by *Cylindrical* Working pressure of shell by rules *85lb.*
Working pressure of furnace by rules *92lb.* Diameter of uptake *2 1/2"* Thickness of uptake plates *1 1/2"* Thickness of water tubes *3/4"*

SPARE GEAR. State the articles supplied:—*2 bon. rod top & 2 bon. rod bottom and bolts + nuts; 2 Main bearing and one set of coupling bolts; one set of feed, bilge, air + circulating pump valves, Assorted bolts + nuts, and iron various sizes, 6 condensers tubes, 8 piston bolts, one main and one donkey feed check valve and propeller.*
The foregoing is a correct description, *RICHARDSONS, WESTGARTH & CO. LIMITED*
Manufacturer. *L.D. Wigglesworth*

Dates of Survey while building { During progress of work in shops - 1902. Sept. 15, 16, 17, 18, 19, Oct. 9, 10, 15, 16, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, Nov. 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28
During erection on board vessel - Dec. 2, 3, 4, 15, 16, 17, 18, 19, 20, 22, 23, 1903. Jan. 5, 6, 7, 13, 16, 19, 21, 28, 29, Feb. 3, 4, 5, 6, 12, 17, 19, 20, Mar. 10, 11, 24
Total No. of visits *78.* Is the approved plan of main boiler forwarded herewith *✓*
" " " donkey " " *No*

General Remarks (State quality of workmanship, opinions as to class, &c.)

Material of screw shaft *Scrap iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No*
Is the after end of the liner made water tight in the propeller boss *Yes* If the liner is in more than one length are the joints burned *✓*
If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If two liners are fitted, is the shaft lapped or protected between the liners *No.*

The main steam pipes have been tested by hydraulic pressure to 320 lbs. per sq. in. and found tight. The engines and boilers of this vessel have been built under special survey in accordance with the Rule requirements, the materials and workmanship being good and efficient. When completed and fitted on board were tried under steam at moorings with satisfactory results, and are now in good working order, and in my opinion, eligible to have I.M.C. 4,003 marked in the Register Book.

It is submitted that this vessel is eligible for THE RECORD - L M C 4:03.

The amount of Entry Fee. £ *4*
Special " " " £ *4*
Donkey Boiler Fee " " " £ *4*
Travelling Expenses (if any) £

When applied for, *18. 4. 03*

When received, *2. 4. 03*

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 1 MAY 1903

TUES. 9 JUN 1903

TUES. 6 OCT 1903

Assigned

FRI. 13 MAY 1904

MACHINERY CERTIFICATE
WRITTEN