

# REPORT ON MACHINERY.

No. 24332  
MON. 31 JAN 1910

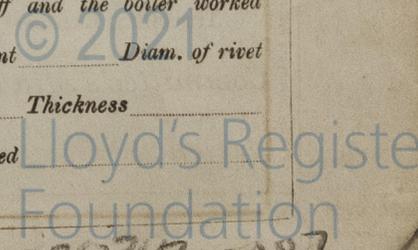
Received at London Office

Date of writing Report 19 When handed in at Local Office 29 Jan. 1910 Port of Sunderland.  
 No. in Survey held at Sunderland. Date, First Survey 17 Feb. 1909 Last Survey 27 Jan. 1910  
 Reg. Book. on the "Bonducar" (Number of Visits)  
 Master Built at S. Land. By whom built J. Brown & Sons L<sup>td</sup>. Tons Gross 1441 Net 804  
 Engines made at S. Land. By whom made Richardsons Westgarth 16<sup>th</sup> when made 1909-10  
 Boilers made at " " By whom made " " when made -1910  
 Registered Horse Power Owners Broomhill Collieries L<sup>td</sup> Port belonging to Newcastle  
 Nom. Horse Power as per Section 28 182 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted no.

**ENGINES, &c.**—Description of Engines In Cpd. No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 18 3/4 30 50 Length of Stroke 36 Revs. per minute 77 Dia. of Screw shaft as per rule 10 7/8 Material of screw shaft as fitted 10 7/8  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes. 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 ✓ Length of stern bush 3' 8" ✓  
 Dia. of Tunnel shaft as per rule 9 4/16 Dia. of Crank shaft journals as per rule 9 8/16 Dia. of Crank pin 10" Size of Crank webs 15x6 1/2 Dia. of thrust shaft under collars 10 Dia. of screw 13 5/8 Pitch of Screw 14 6/8 No. of Blades 4 State whether moveable f Total surface 55 1/2  
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work yes ✓  
 No. of Bilge pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work yes ✓  
 No. of Donkey Engines 2 Sizes of Pumps 11x10; 5 1/2x3 1/2x5 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 4 of 2 1/2 In Holds, &c. two of 2 1/2 in each  
 No. of Bilge Injections 1 sizes 4 Connected to condenser, or to circulating pump CP. Is a separate Donkey Suction fitted in Engine room & size yes 3 1/2 ✓  
 Are 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 ✓  
 Are all connections with the sea direct on the skin of the ship yes. Are they Valves or Cocks both.  
 Are 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 ✓  
 Are 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 ✓  
 What pipes are carried through the bunkers none. How are they protected ✓  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes. ✓  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes. ✓  
 Dates of examination of completion of fitting of Sea Connections 13.12.09 of Stern Tube 13.12.09 Screw shaft and Propeller 24.12.09  
 Is the Screw Shaft Tunnel watertight yes. ✓ Is it fitted with a watertight door yes. worked from top platform

**BOILERS, &c.**—(Letter for record 8) Manufacturers of Steel J. Spencer & Sons L<sup>td</sup>.  
 Total Heating Surface of Boilers 3060 Is Forced Draft fitted no. No. and Description of Boilers 2 S. E. ✓  
 Working Pressure 180 lb Tested by hydraulic pressure to 360 Date of test 29.7.09 No. of Certificate 2477 ✓  
 Can each boiler be worked separately yes. Area of fire grate in each boiler 41 1/2 No. and Description of Safety Valves to each boiler 2 Spring Area of each valve 4 9/16 Pressure to which they are adjusted 185 lb Are they fitted with easing gear yes ✓  
 Smallest distance between boilers or uptakes and bunkers or woodwork 2 feet Mean dia. of boilers 12 9/16 Length 10 ft. Material of shell plates S  
 Thickness 1 3/32 Range of tensile strength 28-32. Are the shell plates welded or flanged Ends Descrip. of riveting: cir. seams 2 x 1 1/2 long. seams abatto. Diameter of rivet holes in long. seams 1 3/32 Pitch of rivets 7 3/4 Lap of plates or width of butt straps 14 1/2 ✓  
 Per centages of strength of longitudinal joint rivets 81.4 plate 85.9 Working pressure of shell by rules 181 lb Size of manhole in shell end. 16x12 ✓  
 Size of compensating ring flanged. No. and Description of Furnaces in each boiler 2 Morrison's Material S Outside diameter 44 3/4 ✓  
 Length of plain part top bottom Thickness of plates crown bottom 9/16 Description of longitudinal joint Welded. ✓ No. of strengthening rings ✓  
 Working pressure of furnace by the rules 185 Combustion chamber plates: Material S Thickness: Sides 7/16 Back 3/16 Top 7/16 Bottom 7/16 ✓  
 Pitch of stays to ditto: Sides 10x8 1/2 Back 9 1/2x9 Top 10x8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 ✓  
 Material of stays S Diameter at smallest part 1 7/8 Area supported by each stay 82 1/8 Working pressure by rules 196 End plates in steam space: Material S Thickness 1 3/32 Pitch of stays 18 1/2x18 How are stays secured d nuts Working pressure by rules 181 Material of stays S ✓  
 Area Diameter at smallest part 6.1 Area supported by each stay 331 Working pressure by rules 196 Material of Front plates at bottom S  
 Thickness 3/32 Material of Lower back plate S Thickness 3/4 Greatest pitch of stays 16x9 Working pressure of plate by rules 232 ✓  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2x4 1/4 Material of tube plates S Thickness: Front 25/32 Back 25/32 Mean pitch of stays 13 1/2 8 1/2 ✓  
 Pitch across wide water spaces 15 Working pressures by rules 191 lb. Girders to Chamber tops: Material S Depth and thickness of girder at centre 8 1/2x12 Length as per rule 29% Distance apart 10 Number and pitch of stays in each 2 @ 8 1/2 ✓  
 Working pressure by rules 181 Superheater or Steam chest; how connected to boiler ✓ Can the superheater be shut off and the boiler worked separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
 If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed  
 Working pressure of end plates Area of safety valves in superheater Are they fitted with easing gear

008386-008392-0087



VERTICAL DONKEY BOILER—

Manufacturers of Steel

*Report attached.*

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_

Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *1 set connecting rod bolts & nuts. 2 main bearing bolts & nuts. 1 set coupling bolts. 1 set feed valve pump valves, propeller, nuts bolts & assortment.*

The foregoing is a correct description. *J.P.* RICHARDSONS, WESTGARTH & CO., LTD  
 Manufacturer. *Frederic H. Russell* ASSISTANT MANAGER.

Dates of Survey while building	During progress of work in shops - -	1909- Feb 17 20 24 27	Apr 15 7 14 19 28	May 4 8 10 12 14 18 20 25	Is the approved plan of main boiler forwarded herewith	Yes					
		June 2 11				July 8 17 22 26 29	Aug 5 10 20	Sept 2 8 11 21 29	Nov 19	Dec 8 13 24 28 31	Yes.
		1910-Jan 5 6 7 11 13 14 21 27									Yes.
	Total No. of visits	47									

Dates of Examination of principal parts—	Cylinders	28.5.09	Slides	28.5.09	Covers	28.5.09	Pistons	28.5.09	Rods	28.5.09	
Connecting rods	28.5.09	Crank shaft	8.9.09	Thrust shaft	8.9.09	Tunnel shafts	11.9.09	Screw shaft	11.9.09	Propeller	2.9.09
Stern tube	8.12.09	Steam pipes tested	8.12.09	Engine and boiler seatings	13.12.09	Engines holding down bolts	28.12.09				
Completion of pumping arrangements	6.1.10.	Boilers fixed	28.12.09	Engines tried under steam	6-1-1910						
Main boiler safety valves adjusted	6-1-1910	Thickness of adjusting washers	P.P. 5/16 5/16 5/16 5/16 5/16 5/16 5/16 5/16 5/16 5/16								
Material of Crank shaft	St	Identification Mark on Do.	477. 5/09	Material of Thrust shaft	RTFS	Identification Mark on Do.	RT.T.				
Material of Tunnel shafts	St	Identification Marks on Do.	PA 6.09 1418	Material of Screw shafts	St	Identification Marks on Do.	3144A				
Material of Steam Pipes	Copper.	Test pressure	360 lbs								

General Remarks (State quality of workmanship, opinions as to class, &c.) *Machinery & boilers built under special survey. Materials & workmanship good. Engines & boilers examined under steam found satisfactory. In my opinion this vessel is eligible for the record of L.M.C. 1.10.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 1.10

*W.H.D.*  
31.1.10. *J.P.P.*

The amount of Entry Fee	£ 2	When applied for,	29.1.10
Special	£ 27.6	When received,	14.2.10
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

*J.Y. Findlay*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned + L.M.C. 1.10



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MACHINERY CERTIFICATE  
 1/2/10 + 15/3/10

Dumbarton

Certificate (if required) to be sent to the Surveyors as requested not to write on or below the space for Committee's Minute.