

## REPORT ON MACHINERY.

WED. 21 SEP 1904

Port of *Belfast*  
 No. in Survey held at *Belfast* Date first Survey *1903 Aug 13* Last Survey *Sept 17 1904*  
 Reg. Book. *S.P.S. Horse-torchire* (Number of Visits *76*)  
 on the *S.P.S. Horse-torchire* Tons Gross *7160* Net *4147.9*  
 Master *Belfast* Built at *Belfast* By whom built *Harland & Wolff L<sup>td</sup>* When built *1904*  
 Engines made at *Belfast* By whom made *Harland & Wolff L<sup>td</sup>* when made *1904*  
 Boilers made at *Belfast* By whom made *Harland & Wolff L<sup>td</sup>* when made *1904*  
 Registered Horse Power *819* Owners *Richmond Steamship Coy L<sup>td</sup>* Port belonging to *Liverpool*  
 Nom. Horse Power as per Section 28 *819* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Twin Screw Quadruple Expansion* No. of Cylinders *8*  
 Dia. of Cylinders *22-3 1/2 - 46 - 65 1/2* Length of Stroke *48* Revs. per minute *76* Dia. of Screw shaft *13 1/2* as per rule *13 1/2* as fitted *14 1/2* Lgth. of stern bush *4-0*  
 Dia. of Tunnel shaft *12 1/2* as per rule *12 1/2* Dia. of Crank shaft journals *12 1/2* as per rule *12 1/2* as fitted *13 1/2* Dia. of Crank pin *13 1/2* Size of Crank webs *25 1/2 x 9 1/2* Dia. of thrust shaft under collars *13 1/2* Dia. of screw *15-10* Pitch of screw *20-6* No. of blades *3* State whether moveable *Yes* Total surface *61 1/2 sq ft each*  
 No. of Feed pumps *1* each *in line* Diameter of ditto *4 1/2* Stroke *28* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *1* each *in line* Diameter of ditto *5* Stroke *28* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *See other page* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *6-3 1/2 x 4-2 1/2* In Holds, &c. *8-3 1/2 x 4-5-2 1/2*

No. of bilge injections *2* sizes *8* Connected to condenser, or to circulating pump *Pump* Is a separate donkey suction fitted in Engine room & size *2-3 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 *None*  
 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 *Both*  
 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 *Fore hold suction* How are they protected *Wood casings*  
 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*  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *Before launching* Is the screw shaft tunnel watertight *Stated to be*  
 Is it fitted with a watertight door *Yes* worked from *Engine Room top platform*

BOILERS, &c.—(Letter for record *2* *Single End Cylinders*) Total Heating Surface of Boilers *13972 sq ft* Is forced draft fitted *No*  
 No. and Description of Boilers *2 Single End Cylinders* Working Pressure *15 lbs* tested by hydraulic pressure to *430 lbs*  
 Date of test *17-5-04* each boiler be worked separately *Yes* Area of fire grate in each boiler *140 sq ft* Description of safety valves to each boiler *Two direct spring* Area of each valve *9 1/2 sq in* Pressure to which they are adjusted *215 lbs* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *7-6* Mean dia. of boilers *15-3* Length *10-8* Material of shell plates *Steel*  
 Thickness *1 1/2* Range of tensile strength *29-32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Double* longitudinal seams *Butt*  
 Diameter of rivet holes in long. seams *1 1/2* Pitch of rivets *10* Top of plates or width of butt straps *2 1/2*  
 Per centages of strength of longitudinal joint *85* Working pressure of shell by rules *247 lbs* Size of manhole in shell *16 x 12*

Size of compensating ring *McNeil* No. and Description of Furnaces in each boiler *4-8* Material *Steel* Outside diameter *42 1/2*  
 Length of plain part *top 3 bottom 13* Thickness of plates *top 1 1/2 bottom 1 1/2* Description of longitudinal joint *Weld* No. of strengthening rings *2 to one*  
 Working pressure of furnace by the rules *235 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *1 1/2* Back *5/8* Top *5/8* Bottom *3/4*  
 Pitch of stays to ditto *7 1/2 x 7 1/2* Back *4 1/2 x 4 1/2* Top *8 x 4 1/2* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *226 lbs*  
 Material of stay *Steel* Diameter at smallest part *1 1/2* Area supported by *one* stay *54 1/2* Working pressure by rules *218 lbs* and plates in steam space:  
 Material *Steel* Thickness *1 1/2* Pitch of stays *7 1/2 x 7 1/2* How are stays secured *Nuts & washers* Working pressure by rules *284 lbs* Material of stays *Steel*  
 Diameter at smallest part *2 1/2* Area supported by *one* stay *259 1/2 sq in* Working pressure by rules *250 lbs* Material of Front plates at bottom *Steel*

Thickness *1 1/2* Material of Lower back plate *Steel* Thickness *1 1/2* Greatest pitch of stays *13 1/2* Working pressure of plate by rules *389 lbs*  
 Diameter of tubes *2 1/2* Pitch of tubes *4 x 4* Material of tube plates *Steel* Thickness: Front *1 1/2* Back *1 1/2* Mean pitch of stays *8 x 8*

Pitch across wide water spaces *14* Working pressures by rules *337 lbs* with *8* *Chamber tops*: Material *Iron* Depth and thickness of girder at centre *8 1/2 x (8 x 2)* Length as per rule *288* Distance apart *98.8* Number and pitch of Stays in each *3-7 1/2*

Working pressure by rules *269* 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 to superheater Are they fitted with easing gear



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