

REPORT ON MACHINERY.

No. 12503

Port of WEST HARTLEPOOL

THUR. 24 NOV 1904

Received at London Office

No. in Survey held at West Hartlepool Date, first Survey 24th June 04 Last Survey 12th Nov^r 1904
 Reg. Book. Subj. on the Steel Screw Steamer "Delta" (Number of Visits 54)
 Master J. Dekker Built at West Hartlepool By whom built W. Gray & Co. Ltd Tons { Gross 2379
 Net 1535
 When built 1904

Engines made at West Hartlepool By whom made Central Marine & Work. when made 1904
 Boilers made at West Hartlepool By whom made Central Marine & Work. when made 1904
 Registered Horse Power 194 Owners Vrachtvaart Maatschappij Port belonging to Amsterdam
 Nom. Horse Power as per Section 28 194 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Compound No. of Cylinders Three No. of Cranks And
 Dia. of Cylinders 21" 33" & 56" Length of Stroke 36" Revs. per minute 65 Dia. of Screw shaft as per rule 11 3/4" Material of Steel
 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 Yes 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 Yes If two
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 46"
 Dia. of Tunnel shaft as per rule 9 7/8" Dia. of Crank shaft journals as per rule 10 2 1/2" Dia. of Crank pin 10 1/2" Size of Crank webs 14 1/2" Dia. of thrust shaft under
 collars 10 1/2" Dia. of screw 14 1/2" Pitch of screw 14 1/2" No. of blades 14 State whether moveable No Total surface 65 1/2
 No. of Feed pumps Two Diameter of ditto 3" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps Two Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Two Sizes of Pumps 5 1/2" & 8" & 8" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Three 3" In Holds, &c. Four 2 1/2" & Tunnel 3"

No. of bilge injections One sizes 5" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size 3"
 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 Yes
 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 Awash
 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 Yes How are they protected Yes
 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 Nov 24 Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Up platform

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 5008 sq ft Is forced draft fitted No
 No. and Description of Boilers Two 4 ft 6 in Lined Bells Working Pressure 160 lb Tested by hydraulic pressure to 520 lb
 Date of test 29/9/04 Can each boiler be worked separately Yes Area of fire grate in each boiler 36 5/8 sq ft No. and Description of safety valves to
 each boiler Two Spring Area of each valve 7 0/7 sq in Pressure to which they are adjusted 165 lb Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 13 0" Length 10 0" Material of shell plates Steel
 Thickness 1 1/32" Range of tensile strength 27 3/2 Are they welded or flanged Both Descrip. of riveting: cir. seams All in lap long. seams All in lap
 Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 7 1/2" Lap of plates or width of butt straps 16 1/2"
 Per centages of strength of longitudinal joint rivets 85 1/2% Working pressure of shell by rules 166 lb Size of manhole in shell 16" x 12"
 Size of compensating ring Flanged No. and Description of Furnaces in each boiler Two Bells Material Steel Outside diameter 42 7/8"
 Length of plain part top Thickness of plates crown Description of longitudinal joint Welded No. of strengthening rings ribbed
 Working pressure of furnace by the rules 162 lb Combustion chamber plates: Material Steel Thickness: Sides 10 1/16" Back 10 1/16" Top 10 1/16" Bottom 14 1/16"
 Pitch of stays to ditto: Sides 10 1/8" Back 9" Top 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 167 lb
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 9 x 9" Working pressure by rules 176 lb End plates in steam space:
 Material Steel Thickness 1 1/16" Pitch of stays 17 1/2" How are stays secured All nuts Working pressure by rules 165 lb Material of stays Steel
 Diameter at smallest part 2 1/2" Area supported by each stay 17 1/2" Working pressure by rules 165 lb Material of Front plates at bottom Steel
 Thickness 1 5/16" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 14" Working pressure of plate by rules 160 lb
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates Steel Thickness: Front 1 5/16" Back 10 1/16" Mean pitch of stays 9"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 166 lb Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 7 1/4" x 1 1/4" Length as per rule 27 1/4" Distance apart 8" Number and pitch of Stays in each Two 9"
 Working pressure by rules 165 lb 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 Lloyd's Register
 Foundation
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

DONKEY BOILER— No. *One* Description *Cochrane Patent*
 Made at *Amman* By whom made *Cochrane & Co* When made *1904* Where fixed *Clitheroe*
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *7263* Fire grate area *25 sq ft* Description of safety valves *two spring*
 No. of safety valves *two* Area of each *7.57 sq ft* Pressure to which they are adjusted *85 lb* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *7' 0"* Length *14' 0"* Material of shell plates *Steel* Thickness *1 7/32"* Range of tensile strength *27 1/2"* Descrip. of riveting long. seams *all in lap* Dia. of rivet holes *2 9/32"* Whether punched or drilled *drilled* Pitch of rivets *2 1/4"*
 Lap of plating *4 1/2"* Per centage of strength of joint *75%* Rivets *75%* Thickness of shell crown plates *1 5/32"* Radius of do. *3' 6"* No. of Stays to do. *four* Plates *67%*
 Dia. of stays *—* Diameter of furnace Top *36"* Bottom *—* Length of furnace *—* Thickness of furnace plates *1 1/16"* Description of joint *riveted* Thickness of furnace crown plates *—* Stayed by *—* Working pressure of shell by rules *101 lb*
 Working pressure of furnace by rules *114 lb* Diameter of uptake *2 1/2"* Thickness of uptake plates *1 3/16" x 1 1/8"* Thickness of water tubes *1/4"*

SPARE GEAR. State the articles supplied:— *Two top end bolts. Two bottom end bolts. Two main bearing bolts. One set coupling bolts. One set feed pump valve. One set bilge pump valve. Propeller. Valve spindle. Air pump rod. Circulating pump rod. Eccentric strap. One main top end beam. One main bottom end block. Safety valve spring set. 15 P piston springs. Bolt nuts. Stud. 12 counted.*

The foregoing is a correct description,
Wm B. Borrowdale Manufacturers of main boilers & engines.

Dates of Survey while building { During progress of work in shops - 1904 June 24, 27, 30, July 5, 7, 22, 25, 26, 27, Aug 8, 12, 16, 23, 24, 25, 27, 31, Sept 1, 2, 5, 6, 8, 12, 13, 15, 16, 19, 21, 22, 23, 24
 { During erection on board vessel - 26, 27, 28, 29, 30, Oct 3, 5, 6, 7, 10, 11, 12, 14, 17, 18, 20, 21, 24, 26, 27, Nov 4, 11, 12.
 Total No. of visits *54* Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " "

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

The main steam pipes have been tested by hydraulic pressure to 400 lbs per square inch and found sound.

The Machinery and Boilers of this Vessel have been constructed under Special Survey and placed on board in accordance with the Society's Rules. They are now in my opinion in safe working condition and the case is respectfully submitted for the Notification + L.N.C. 11.04 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD L.M.C. 11.04

Wm B. Borrowdale
24.11.04

Certificate (if required) to be sent to West Hartlepool

The amount of Entry Fee... £ *2* : : When applied for, *22. 11. 04*
 Special .. £ *29* : :
 Donkey Boiler Fee .. £ : : When received, *23. 11. 04*
 Travelling Expenses (if any) £ : :

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

Committee's Minute *FRI. 25 NOV 1904*
+ L.M.C. 11.04
 Assigned