

# REPORT ON MACHINERY.

Port of Falmouth

Received at London Office 17 MAR 1922

No. in Survey held at Falmouth

Date, first Survey 26<sup>th</sup> January Last Survey 16<sup>th</sup> March 1922

Reg. Book.

30182 on the Steel Twin Screw Steamer "Norfolk" ex "Sauerland"

(Number of Visits 15)

Tons } Gross 10973

Net 6901

Master

Built at Vegesack

By whom built Bremer Vulkan

When built 1918

Engines made at Vegesack

By whom made Bremer Vulkan

when made 1918

Boilers made at Vegesack

By whom made Bremer Vulkan

when made 1918

Registered Horse Power

Owners Federal Steam Co Ltd

Port belonging to London

Nom. Horse Power as per Section 28 1115

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion (twin) No. of Cylinders 6 No. of Cranks 6

Dia. of Cylinders 28 3/8 - 46 7/8 - 75 5/8 Length of Stroke 51 1/4 Revs. per minute \_\_\_\_\_ Dia. of Screw shaft as per rule 16.62 Material of screw shaft steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no *oil gland see pag. 8/4* Is the after end of the liner made water tight in the propeller boss \_\_\_\_\_ 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 5'-1"

Dia. of Tunnel shaft as per rule 14.58 Dia. of Crank shaft journals as per rule 15.3 Dia. of Crank pin 15 1/4 Size of Crank webs 24x10 Dia. of thrust shaft under collars 15.375 Dia. of screw 18-6 Pitch of Screw 19-2 No. of Blades 4 State whether moveable yes Total surface \_\_\_\_\_

No. of Feed pumps 2 Type Wet Diameter of ditto 11 3/8 Stroke 26 1/16 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 5 3/8 Stroke 25 Can one be overhauled while the other is at work yes

No. of Donkey Engines Three Sizes of Pumps Two 6 1/4 x 12 In 13 3/8 x 13 3/8 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Two 3 1/2, Two 4; two 3 1/2 + two 2 1/2 in BR, Two 3 1/2 in TR, In Holds, &c. Two 3 1/2 and one 2 1/2 in each hold

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 yes one 4"

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 below

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 forward sections How are they protected carried under timber boards

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 24<sup>th</sup> Feb 1922 of Stern Tube 24<sup>th</sup> Feb 1922 Screw shaft and Propeller 24<sup>th</sup> Feb 1922

Is the Screw Shaft Tunnel watertight yes Are they fitted with a watertight doors. yes worked from ER top platform.

## BOILERS, &c.—(Letter for record \_\_\_\_\_) Manufacturers of Steel

Total Heating Surface of Boilers 15525 Is Forced Draft fitted yes No. and Description of Boilers 5 Single Ended

Working Pressure 199 lbs Tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_

Can each boiler be worked separately yes Area of fire grate in each boiler 67.5 sq ft No. and Description of Safety Valves to each boiler three spring loaded Area of each valve 9.6 sq in Pressure to which they are adjusted 204 lbs per sq in Are they fitted with easing gear yes

Smallest distance between boilers 18" and bunkers \_\_\_\_\_ Mean dia. of boilers 16.2 Length 12-3 Material of shell plates steel

Thickness 1 1/2" Range of tensile strength 28.6-33.6 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double

long. seams TRABS Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 18 3/8" width of butt straps 2.5 1/2"

Per centages of strength of longitudinal joint \_\_\_\_\_ rivets 105 Working pressure of shell by rules 209 lbs Size of manhole in shell 20 1/2 x 17 1/2"

Size of compensating ring 15" x 1 1/2" No. and Description of Furnaces in each boiler 3 corrugated Material steel Outside diameter 48 1/8"

Length of plain part \_\_\_\_\_ Thickness of plates \_\_\_\_\_ Description of longitudinal joint welded No. of strengthening rings \_\_\_\_\_

Working pressure of furnace by the rules 207 Combustion chamber plates: Material steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 29/32"

Pitch of stays to ditto: Sides 7 5/8 x 7 1/2" Back 7 1/8 x 7 1/2" Top 7 1/8 x 7 1/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 260 lbs

Material of stays steel Diameter at smallest part 2.07 1/8" Area supported by each stay 81 sq in Working pressure by rules 230 lbs End plates in steam space: Material steel Thickness 1 3/32" Pitch of stays 16 5/8 x 14 1/2" How are stays secured dbl nut Working pressure by rules 227 lbs Material of stays steel

Diameter at smallest part 3" Area supported by each stay 235 sq in Working pressure by rules 256 lbs Material of Front plates at bottom steel

Thickness 1" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 15 1/2 x 6 7/8" Working pressure of plate by rules 227 lbs

Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 1 3/32" Back 29/32" Mean pitch of stays 9"

Pitch across wide water spaces 14 3/16" Working pressures by rules appd 199 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/8 x 1 1/2" Length as per rule 33 1/2" Distance apart 7 7/8" Number and pitch of stays in each three 7 7/8"

Working pressure by rules 182 lbs 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 \_\_\_\_\_

TO WRITE ACROSS THIS MARGIN.

VERTICAL DONKEY BOILER— Manufacturers of Steel

|                                      |  |                           |                                     |                                  |                       |
|--------------------------------------|--|---------------------------|-------------------------------------|----------------------------------|-----------------------|
| 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 casing 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<br>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: *4 top end bolts and nuts, 2 bottom end bolts and nuts, 2 main bearing bolts and nuts, 2 sets coupling bolts and nuts, 1 set of feed and bilge pump valves, 1 set H.P. I.P.P. piston rings with 50 springs for I.P. piston. A quantity of assorted nuts, bolts & iron of various sizes. 40 condenser tubes and 140 ferrules, 22 main boiler plain tubes and 17 stay tubes, 1 safety valve spring, 1 set feed check valves and seats, 1 set auxiliary feed pump valves and seats, 1 set ballast pump valves and seats and a complete set of spare piston rings for E.R. workhouse.*

The foregoing is a correct description.

Manufacturer. *seats and a complete set of spare piston rings for E.R. workhouse.*

|                                |                                      |                     |    |  |     |
|--------------------------------|--------------------------------------|---------------------|----|--|-----|
| Dates of Survey while building | During progress of work in shops - - | Total No. of visits | 15 | Is the approved plan of main boiler forwarded herewith | yes |
|                                | During erection on board vessel - -  |                     |    |  | no  |
|                                | donkey                               |                     |    |  | no  |

|   |                   |  |  |                            |                             |
|---|-------------------|--|--|----------------------------|-----------------------------|
| Dates of Examination of principal parts | Cylinders 26/1/22 | Slides 26/1/22                                   | Covers 26/1/22   | Pistons 26/1/22            | Rods 26/1/22                |
| Connecting rods                         | 26/1/22           | Crank shaft 26/1/22                              | Thrust shaft 2/1/22  | Tunnel shafts 2/1/22       | Screw shafts 1/3/22         |
| Stern tubes                             | 1/3/22            | Steam pipes tested 16/2/22                       | Engine and boiler seatings   | Engines holding down bolts |                             |
| Completion of pumping arrangements      | 6/2/22            | Boilers fixed                                    | Engines tried under steam 16/3/22  |                            |                             |
| Main boiler safety valves adjusted      | 15/3/22           | Thickness of adjusting washers                   | PFB PV 2 1/2 SV 2 1/2 AV 2 1/2 PV 1 1/2 SV 1 1/2 FV 2 1/2 PV 1 1/2 SV 1 1/2 AV 1 1/2 PV 1 1/2 SV 1 1/2 |                            |                             |
| Material of Crank shaft                 | Steel             | Identification Mark on Do.                       | Material of Thrust shaft   | Steel                      | Identification Mark on Do.  |
| Material of Tunnel shafts               | Steel             | Identification Marks on Do.                      | Material of Screw shafts   | Steel                      | Identification Marks on Do. |
| Material of Steam Pipes                 | Steel             | Test pressure Six hundred pounds per square inch |  |                            |                             |

General Remarks (State quality of workmanship, opinions as to class, &c. *This vessel has been placed in dry dock the cylinders, pistons, slide valves and their chests, the air, circulating feed and bilge pump, condensers (tested) pipe connections; Crank, thrust, intermediate and propeller shafts; propellers; stern bushes; sea valves and cocks and their connections to the shell plating; steam steering engine; Windlass; all engine room auxiliaries. The main boilers, their safety valves and other mountings examined throughout and found or put in good order. Safety valves adjusted as above. Engines tried under steam and found to work well. (Wear down of T.S. in V.M. Inc. on star side) Wear & tear repairs. Crank shafts lifted and lower halves of all main bearing re-metalled. Cross seams of back plates of all boilers electrically welded at corners, front cross seams welded as required. Bright new propeller blades fitted (Stones Manganese Bronze) Several other minor repairs effected. This machinery is now so far as seen in good condition and eligible in my opinion to be classed with Record of L.M.C. 3, 22 for a working pressure of 199 lbs per sq in (See letters E. 24/6/21. 8/3/22) with notation of tail shafts seen 3/22*

|                              |         |                  |
|------------------------------|---------|------------------|
| Amount of Entry Fee          | £       | When applied for |
| Special                      | £ 50.00 | 7/4/22           |
| Donkey Boiler Fee            | £       | When received    |
| Travelling Expenses (if any) | £       | 27/4/22          |

A. T. Graham  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Committee's Minute  
Assigned

LN 6 3 22

F.D.

The Surveyors are requested not to apply on or before the date for Committee's Minute

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