

## REPORT ON BOILERS.

No. 82740

Received at London Office

14 MAY 1928

Date of writing Report 9-5-1928 When handed in at Local Office 12-5-1928 Port of Newcastle-on-Tyne

No. in Reg. Book. 39869 on the S.S. APURE (Sup.)

No. in Surrey held at Garrow Date, First Survey 30 Dec 1927 Last Survey 3 May 1928

(Number of Visits) Gross 3163.72 Tons Net 1669.22

Master Built at Hebburn By whom built Palmers Co. Ltd. Yard No. 982 When built 1928

Engines made at Garrow By whom made Palmers Co. Ltd. Engine No. 982 When made 1928

Boilers made at Garrow By whom made Palmers Co. Ltd. Boiler No. 982 When made 1928

Nominal Horse Power 248 Owners Venezuela Gulf Oil Co. Inc. Port belonging to Maracaibo

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Company of Scotland Ltd. (Letter for Record S)

Total Heating Surface of Boilers 4808 <sup>258</sup> Is forced draught fitted No Coal or Oil fired OIL

No. and Description of Boilers Two S.E. CYLINDRICAL MULTITUBULAR Working Pressure 180 LBS.

Tested by hydraulic pressure to 320 LBS. Date of test 23.3.28 No. of Certificate 258/9 Can each boiler be worked separately YES

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two SPRING LOADED

Area of each set of valves per boiler {per Rule 18.49 as fitted 19.24 Pressure to which they are adjusted 180 LBS. Are they fitted with easing gear YES

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork 1' 6" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 2' 1 1/2" Is the bottom of the boiler insulated YES

Largest internal dia. of boilers 15' 0" Length 11' 6" (MEAN) Shell plates: Material STEEL Tensile strength 28 - 32 TONS

Thickness 1 1/4" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R.L. inter. Pitch of rivets {3.954 8 1/8

long. seams T.R. D.B.S. Diameter of rivet holes in {circ. seams 1 3/8 long. seams 1 1/4

Percentage of strength of circ. end seams {plate 65.2% rivets 49.6% Percentage of strength of circ. intermediate seam {plate 85.6% rivets 87.1% combined 88.5%

Percentage of strength of longitudinal joint {plate 85.6% rivets 87.1% combined 88.5% Working pressure of shell by Rules 183 LBS.

Thickness of butt straps {outer 3 1/2 inner 1 3/2 No. and Description of Furnaces in each Boiler 3 CORRUGATED DEIGHTON SECTION 3 CF

Material STEEL Tensile strength 26 - 30 TONS Smallest outside diameter 3' 7 1/8"

Length of plain part {top 10 1/2 bottom 10 1/2 Thickness of plates {crown 9/16 bottom 9/16 Description of longitudinal joint WELD

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 187 LBS.

End plates in steam space: Material STEEL Tensile strength 26 - 30 TONS Thickness 1 1/4" Pitch of stays 21" x 21"

How are stays secured NUTS & WASHERS Working pressure by Rules 182 LBS.

Tube plates: Material {front STEEL back STEEL Tensile strength {26 - 30 TONS Thickness {15/16 27/32

Mean pitch of stay tubes in nests 9 3/8" Pitch across wide water spaces 1' 2" Working pressure {front 186 LBS. back 202 LBS.

Girders to combustion chamber tops: Material STEEL Tensile strength 28 - 32 TONS Depth and thickness of girder at centre 10" x 1 3/8" Length as per Rule 2' 10 1/2" Distance apart 10" No. and pitch of stays in each 3 @ 8 3/4" Working pressure by Rules 182 LBS. Combustion chamber plates: Material STEEL

Tensile strength 26 - 30 TONS Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 3/4"

Pitch of stays to ditto: Sides 8 3/4" x 8 1/4" Back 9" x 8" Top 10' x 8 3/4" Are stays fitted with nuts or riveted over NUTS ON MARGINAL STAYS OTHERS RIVETED.

Working pressure by Rules 182 LBS. Front plate at bottom: Material STEEL Tensile strength 26 - 30 TONS

Thickness 15/16" Lower back plate: Material STEEL Tensile strength 26 - 30 TONS Thickness 29/32

Pitch of stays at wide water space d<sup>2</sup> = 19.5" Are stays fitted with nuts or riveted over NUTS

Working Pressure 184 LBS. Main stays: Material STEEL Tensile strength 28 - 32 TONS

Diameter {At body of stay, or Over threads 3 1/4" No. of threads per inch 8 Area supported by each stay 441"

Working pressure by Rules 183 LBS. Screw stays: Material STEEL Tensile strength 26 - 30 TONS

Diameter {At turned off part, or Over threads 1 5/8" No. of threads per inch 9 Area supported by each stay 72.18"



Working pressure by Rules **211 LBS** Are the stays drilled at the outer ends **No** Margin stays: Diameter { At turned off part, **1 3/4"** or **2"** Over threads **1 3/4"** **2"**

No. of threads per inch **9** Area supported by each stay **99 & 123.75** Working pressure by Rules **183 & 201 LBS**

Tubes: Material **W. IRON** External diameter { Plain **2 1/2"** Stay **2 1/2"** Thickness { **9 LSG** **5/16"**, **3/8"**, **7/16"** No. of threads per inch **9**

Pitch of tubes **3 3/4" x 3 3/4"** Working pressure by Rules **230 LBS** Manhole compensation: Size of opening in shell plate **20" x 16"** Section of compensating ring **2' 11 1/2" x 2' 8" x 1 1/4"** No. of rivets and diameter of rivet holes **40 @ 1 1/4"**

Outer row rivet pitch at ends **8 1/8"** Depth of flange if manhole flanged **4 1/2"** Steam Dome: Material **-**

Tensile strength **-** Thickness of shell **-** Description of longitudinal joint **-**

Diameter of rivet holes **-** Pitch of rivets **-** Percentage of strength of joint { Plate **-** Rivets **-**

Internal diameter **-** Working pressure by Rules **-** Thickness of crown **-** No. and diameter of stays **-** Inner radius of crown **-** Working pressure by Rules **-**

How connected to shell **-** Size of doubling plate under dome **-** Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell **-**

Type of Superheater **-** Manufacturers of { Tubes **-** Steel castings **-**

Number of elements **-** Material of tubes **-** Internal diameter and thickness of tubes **-**

Material of headers **-** Tensile strength **-** Thickness **-** Can the superheater be shut off and the boiler be worked separately **-**

Area of each safety valve **-** Are the safety valves fitted with easing gear **-** Working pressure as per Rules **-** Pressure to which the safety valves are adjusted **-** Hydraulic test pressure: tubes **-** castings **-** and after assembly in place **-** Are drain cocks or valves fitted to free the superheater from water where necessary **-**

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with **YES**

*Palmer's* The foregoing is a correct description,

*N. Brown* Manufacturer.

*Manager, Engine Works*

Dates of Survey { During progress of work in shops --) while building { During erection on board vessel --)

*See Machinery Report*

Are the approved plans of boiler and superheater forwarded herewith **yes.** (If not state date of approval.)

Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under Special Survey, the materials and workmanship are good.*

Survey Fee ... £ *See Machinery Report* : When applied for, 192

Travelling Expenses (if any) £ *See Machinery Report* : When received, 192

*Thomas Napier*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUES. 22 MAY 1928

Assigned

*See P. 6 rpt. attached*



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