

Rpt. 4.

# REPORT ON MACHINERY.

No. 620

Received at London Office

TUE. 22 MAR. 1921

Date of writing Report Feb. 25 1921 When handed in at Local Office Feb. 28 1921 Port of Portland, Oregon

No. in Survey held at Vancouver, Washington Date, First Survey Mar. 30 '20 Last Survey Feb. 17 1921

Reg. Book. on the Steel Screw Steamer "LIVINGSTONE ROE" (Number of Visits 47)

Tons { Gross 8194.18 Net 5934.96

Master R. A. Smith Built at Vancouver, Wash. By whom built G.M. Standifer Const. Corp. When built 1921

Engines made at Hamilton, Ohio By whom made Hooven, Owens & Rentschler when made 1920

Boilers made at Portland, Oregon By whom made Willamette Iron & Steel Works when made 1920

Registered Horse Power Owners Standard Oil Co. of New Jersey Port belonging to Bayonne, N.J.

Nom. Horse Power as per Section 28 552 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

## ENGINES, &c.—Description of Engines Quadruple Expansion No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 24, 35, 51, 75" Length of Stroke 51" Revs. per minute 82 Dia. of Screw shaft as per rule 14.7 as fitted 15" Material of screw shaft 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 If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5'-0"

Dia. of Tunnel shaft as per rule 13.48 as fitted 13 1/2" Dia. of Crank shaft journals as per rule 14.15 as fitted 14.25 Dia. of Crank pin 14 3/4" Size of Crank webs 27 1/2" x 9 3/4" Dia. of thrust shaft under

collars 14 1/2" Dia. of screw 17'-6" Pitch of Screw 17'-6" No. of Blades 4 State whether moveable Yes Total surface 97.96 Sq. Ft.

No. of Feed pumps 3 Diameter of ditto 12" x 8" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 1 Sizes of Pumps 8 1/2" x 8" x 12" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four of 3 1/2" In Holds, &c. Stokehold two of 3 1/2"

The Screw Shaft Liner is fitted in three lengths burned together to full depth of Liner.

No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump Cir. P. Is a separate Donkey Suction fitted in Engine room & size No

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 on Sea Stools Are they Valves or Cocks Valves

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

## BOILERS, &c.—(Letter for record S) Manufacturers of Steel Midvale Steel Co. & Lukens Steel Co.

Total Heating Surface of Boilers 7434 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 3 Single End Scotch Marine

Working Pressure 220 lbs. Tested by hydraulic pressure to 330 lbs. Dates of tests 9:18:20 9:22:20 9:24:20 Nos of Certificates 201, 202 & 203

Can each boiler be worked separately Yes Area of fire grate in each boiler None—Oil Burning No. and Description of Safety Valves to

each boiler 2 Ashton Duplex 3" Area of each valve 7.06" Pressure to which they are adjusted 220 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers 14'-4" Length 11'-6" Material of shell plates Steel

Thickness 1-19/32 Range of tensile strength 71680 Are the shell plates welded or flanged Flanged Descrip. of riveting: cir. seams D.R.

long. seams Triple Riveted Double Butt Strap Diameter of rivet holes in long. seams 1-9/16" Pitch of rivets 10-1/16-5-1/32 Lap of plates or width of butt straps 22 1/2"

Per centages of strength of longitudinal joint rivets 88.93 Working pressure of shell by rules 242 Size of manhole in shell 12 x 16

Size of compensating ring 34" x 38" No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 3'-11 3/8"

Length of plain part top -- bottom -- Thickness of plates crown 11/16" bottom 11/16" Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules 240 Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 31/32"

Pitch of stays to ditto: Sides 7" x 7 1/2" Back 7" x 7 1/8" Top 7" x 8" If stays are fitted with nuts or riveted heads Nuts & R.H. Working pressure by rules 230

Material of stays Steel Area at smallest part 1 1/8" = 2.06 Area supported by each stay 52.5 Working pressure by rules 250 End plates in steam space:

Material Steel Thickness 1 1/2" Pitch of stays 16" x 19" How are stays secured Double Nuts Working pressure by rules 227 Material of stays Steel

Area at smallest part 8.95 Area supported by each stay 304 Working pressure by rules 306 Material of Front plates at bottom Steel

Thickness 25/32 Material of Lower back plate Steel Thickness 3/4 Greatest pitch of stays 12-5/8" Working pressure of plate by rules 396

Diameter of tubes 2 3/4" Pitch of tubes 3-7/8 x 3 3/4" Material of tube plates Steel Thickness: Front 25/32" Back 13/16" Mean pitch of stays 9 1/2"

Pitch across wide water spaces 13 1/2" Working pressures by rules 249 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 3/4 x 11" Length as per rule 34" Distance apart 8" Number and pitch of stays in each 4 of 7" Pitch

Working pressure by rules 280 Steam dome: description of joint to shell % of strength of joint

Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

## SUPERHEATER. Type Date of Approval of Plan Tested by Hydraulic Pressure to

Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted

IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? Yes

SPARE GEAR. State the articles supplied:— 2 Top End Bolts & Nuts, 2 Bottom End Bolts & Nuts, 2 Main Bearing Bolts & Nuts, 1 set Coupling Bolts & Nuts, 1 set of Piston Springs and Rings for each Piston, 1 set of Valves each for Air, Circulating, Feed and Bilge Pumps, 1 pair Crosshead Brasses, 1 pair Crank Pin Brasses, H.P. I.P. & L.P. Valve Stems and eccentric straps, 2 Air Pump Links, 1 Crank Shaft, 1 Propeller Shaft and Nut, 1 Cast Iron Propeller Boss and 2 Bronze Blades, 1 set Stud and Nuts for 1 Blade, 25 Boiler Tubes, 25 Condenser Tubes and 100 Ferrules.

The foregoing is a correct description,

J. H. Jones, Chief Engineer, G. M. Saunders Cast-Steel Co. Manufacturer.

Dates of Survey while building: During progress of work in shops - Mar. 30 Apr. 8 June 3, 25, 29. July 9, 20, 21. Aug. 14, 16, 17, 18, 19, 20, 23, 24, 27, 28. During erection on board vessel - Sept. 10, 11, 13, 16, 17, 18, 21, 22, 25, Oct. 29. Dec. 2, 11, 17, 18, 20, 23, 24, 28. Jan. 3, 4, 5, 6, 10, 19, 27. Feb. 2, 15, 17. Total No. of visits 47.

Dates of Examination of principal parts: Connecting rods, Crank shaft, Thrust shaft, Tunnel shafts, Screw shaft, Propeller, Stern tube, Steam pipes tested, Engine and boiler seatings, Engines holding down bolts, Completion of pumping arrangements, Boilers fixed, Engines tried under steam, Completion of fitting sea connections, Stern tube, Screw shaft and propeller, Main boiler safety valves adjusted, Thickness of adjusting washers, Material of Crank shaft, Identification Mark on Do., Material of Thrust shaft, Identification Mark on Do., Material of Tunnel shafts, Identification Marks on Do., Material of Screw shafts, Identification Marks on Do., Spare Do., Material of Steam Pipes, O. H. Lapwelded Steel, Test pressure, Is an installation fitted for burning oil fuel, Is the flash point of the oil to be used over 150°F., Have the requirements of Section 49 of the Rules been complied with, Is this machinery duplicate of a previous case, If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c.) The Quadruple Expansion Engines have been constructed under Special Survey at Hamilton, Ohio and installed at Vancouver, Washington.

The Boilers have been constructed at Portland, Oregon, under Special Survey in accordance with the Rules and installed at Vancouver, Washington.

It is submitted that the record of LMC 2-21 Electric Light be made in the Register Book in the case of this Vessel.

It is submitted this vessel is eligible for THE RECORD. + LMC 2.21. F.D. CL

FITTED FOR OIL FUEL 2.21. FP ABOVE 150°F

Bell 5/4/21

MACHINERY DEPT WRITTEN 7/4/21 dated 22/3/21

Table with 2 columns: Fee Type (Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses) and Amount (30.00, 515.00, 50.00, 115.00). Includes dates for application and receipt.

J. H. Yates, Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute New York MAR - 8 1921

Assigned + Lmc 2.21

