

## REPORT ON BOILERS.

20 JUL 1942

Received at London Office.

Date of writing Report June 10th 1942 When handed in at Local Office June 10th 1942 Port of RICHMOND, CALIFORNIA

No. in Survey held at RICHMOND, CALIFORNIA Date, First Survey February 20, 1942 Last Survey April 14th 1942

eg. Book. on the S. S. "OCEAN VOLUNTEER" (Number of Visits 48) Tons { Gross 7174 Net 4272

Built at RICHMOND, CALIF. By whom built TODD-CALIFORNIA SHIPBUILDING DIVISION OF THE Yard No. 16 When built 1942  
PERMANENTE METALS CORPORATION

Engines made at HAMILTON, OHIO By whom made GENERAL MACHINERY CORPORATION Engine No. 6558 When made 1942

Boilers made at SEATTLE, WASHINGTON By whom made PUGET SOUND MACHINERY DEPOT Boiler No. 4, 5, & 6 When made 1942

Nominal Horse Power 505 Owners BRITISH GOVERNMENT Port belonging to LONDON

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

Manufacturers of Steel LUKENS, CARNEGIE-ILLINOIS STEEL CO. (Letter for Record S ✓)

Total Heating Surface of Boilers 7140 sq. ft. ✓ Is forced draught fitted YES ✓ Coal or Oil fired COAL ✓

No. and Description of Boilers 3 SINGLE ENDED, SCOTCH MULTITUBULAR ✓ Working Pressure 220 lbs.

Tested by hydraulic pressure to 380 lbs. ✓ Date of test Nov. 29th Dec. 1st, 1941 No. of Certificate 4, 5, & 6 Can each boiler be worked separately YES

Area of Firegrate in each boiler 52 sq. ft. No. and Description of Safety valves to each boiler 2 SPRING LOADED SPECIAL HIGH LIFT ✓

Area of each set of valves per boiler { per Rule APPROVED as fitted 5.52" Pressure to which they are adjusted 220 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 -- Is oil fuel carried in the double bottom under boilers NO

Smallest distance between shell of boiler and tank top plating 2 feet ✓ Is the bottom of the boiler insulated YES

Largest internal diameter of boilers 14' 6 3/16" ✓ Length 11' 6 3/16" Shell plates: Material STEEL Tensile strength 65,000/75,000 lbs. per sq. in.

Thickness 1 13/32" ✓ Are the shell plates welded or flanged NO Description of riveting: circ. seams { end D.P. per sq. in. inter. --

Long. seams T.R.D.B.S. ✓ Diameter of rivet holes in { circ. seams 1.5" ✓ Pitch of rivets { 5" ✓ 10" ✓ long. seams 1.5" ✓

Percentage of strength of circ. end seams { plate 64.7 ✓ rivets 47.0 ✓ Percentage of strength of circ. intermediate seam { plate -- rivets --

Percentage of strength of longitudinal joint { plate 85.0 ✓ rivets 93.4 ✓ combined 88.8 ✓

Thickness of butt straps { outer 1 3/32" ✓ inner 1 7/32" ✓ No. and Description of Furnaces in each Boiler 3 MORRISON TYPE ✓

Material STEEL Tensile strength 58000/68000 lbs. per sq. in. Smallest outside diameter 44 9/16"

Length of plain part { top 7 13/16" ✓ Thickness of plates { crown 21/32" ✓ bottom 21/32" ✓ Description of longitudinal joint FORGE WELD

Dimensions of stiffening rings on furnace or c.c. bottom --

End plates in steam space: Material STEEL ✓ Tensile strength 58000/68000 lbs. per sq. in. Thickness 1 1/32" R.D. Pitch of stays 21" ✓

How are stays secured DOUBLE NUTS ✓

Tube plates: Material { front STEEL ✓ Tensile strength { 58000/68000 lbs. per sq. in. Thickness { 1 1/32" ✓ back STEEL ✓ 58000/68000 " " " 13/16" ✓

Mean pitch of stay tubes in nests 9.56" ✓ Pitch across wide water spaces 14.5" x 4 1/8" & 4 1/4" ✓

Girders to combustion chamber tops: Material STEEL ✓ Tensile strength 65000/75000 lbs. per sq. in. Depth and Thickness of girder

Centre 10.25" x 2 @ 7/8" ✓ Length as per Rule 2' 10" ✓ Distance apart 11" ✓ No. and pitch of stays

each 3 @ 7.625" ✓ Combustion chamber plates: Material STEEL ✓

Tensile strength 58000/68000 lbs. per sq. in. Thickness: Sides 25/32" ✓ Back 25/32" ✓ Top 25/32" ✓ Bottom 25/32" ✓

Pitch of stays to ditto: Sides 9" x 10 3/16" Back 9" x 9" ✓ Top 11" x 7 5/8" ✓ Are stays fitted with nuts or riveted over NUTS INSIDE RIVETED OUTSIDE

Front plate at bottom: Material STEEL Tensile strength 58000/68000 lbs. per sq. in.

Thickness 1 1/32" ✓ Lower back plate: Material STEEL Tensile strength 58000/68000 lbs. per sq. in. Thickness 1 1/32" ✓

Pitch of stays at wide water space 14 1/2" x 9" ✓ Are stays fitted with nuts or riveted over NUTS & RIVETED OVER ✓

Main stays: Material STEEL Tensile strength 65000/75000 lbs. per sq. in. ✓

Diameter { At body of stay, 3.5" ✓ No. of threads per inch 6 ✓ or Over threads 3.75" ✓

Screw stays: Material STEEL Tensile strength 58000/68000 lbs. per sq. in. ✓

Diameter { At turned off part, -- No. of threads per inch 9 ✓ or Over threads 1 7/8" Sides 1 3/4" Back



Are the stays drilled at the outer ends NO Margin stays: Diameter { At turned off part, --- or --- Over threads. 2 1/8" 2"

No. of threads per inch 9

Tubes: Material STEEL External diameter { Plain 3" Stay 3" Thickness { .165 3/8" 5/16" No. of threads per inch 9

Pitch of tubes 4 1/4" x 4 1/8" Manhole compensation: Size of opening ---

Shell plate 16" x 12" Section of compensating ring NONE No. of rivets and diameter of rivet holes ---

Outer row rivet pitch at ends --- Depth of flange if manhole flanged 3 3/4" Steam Dome: Material NONE

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 --- Thickness of crown --- No. and diameter of stays ---

Inner radius of crown ---

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 ELESCO MARINE Manufacturers of { Tubes DETROIT SEAMLESS STEEL TUBE CO. Steel forgings COMBUSTION ENGINEERING COMPANY Steel castings NONE

Number of elements 174 Material of tubes STEEL Internal diameter and thickness of tubes .685" .095"

Material of headers STEEL Tensile strength 60000 lbs. per sq. in. Thickness 1 1/8" Can the superheater be shut off and the boiler be worked separately NO Is a safety valve fitted to every part of the superheater which can be shut off from the boiler NO

Area of each safety valve 1.75 sq. inch Are the safety valves fitted with easing gear NO

Pressure to which the safety valves are adjusted 220 lbs. per sq. in. Hydraulic test pressure ---

tubes 1000 lbs. per sq. in. forgings and castings 440 lbs. per sq. in. and after assembly in place 380 lbs. per sq. in. Are drain cocks valves fitted to free the superheater from water where necessary YES

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with YES

The foregoing is a correct description,  
*W. J. Day* Manufacturer

Dates of Survey { During progress of work in shops -- July 31st to December 18th, 1941 Are the approved plans of boiler and superheater forwarded herewith NO (If not state date of approval.) July 8th, 1941

while building { During erection on board vessel -- February 20th to April 14th, 1942 Total No. of visits 48

Is this Boiler a duplicate of a previous case NO If so, state Vessel's name and Report No. "OCEAN VIGOUR"

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers, constructed under Special Survey (See Seattle Blr. Reports Nos. 3444, 3445, 3446 attached hereto) have now been fitted on board the vessel in accordance with the approved plans and the requirements of the Rules. The safety valves were adjusted under steam to 220 lbs. per sq. inch. The boilers were tried under working conditions with good results and in our opinion, are now in a good and safe condition.

Survey Fee ... £ Inclusive fee { When applied for, 19

Travelling Expenses (if any) £ to be charged { When received, 19

in London

FOR SELF AND J. F. ROBERTSON

*John M. M.*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK JUL 1 1942

Assigned 3 SB (Cht) 220 lbs.



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