

# REPORT ON BOILERS.

Rpt. 5a.

Received at London Office 31 AUG 1942

Date of writing Report July 25th 1942 When handed in at Local Office July 25th 1942 Port of RICHMOND, CALIFORNIA

No. in Reg. Book. Survey held at RICHMOND, CALIFORNIA Date, First Survey April 10th, 1942 Last Survey May 27th 1942

on the S. S. "OCEAN VAGRANT" (Number of Visits 42) Tons Gross 7174 Net 4272

Built at RICHMOND, CALIFORNIA By whom built TODD-CALIFORNIA SHIPBUILDING DIVISION of The Permanente Metals Corporation Yard No. 22 When built 1942

Engines made at HAMILTON, OHIO By whom made GENERAL MACHINERY CORP. Engine No. 6712 When made 1942

Boilers made at SEATTLE, WASHINGTON By whom made PUGET SOUND MACHINERY DEPOT Boiler No. 16, 17 & 18 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 COMPANY (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

Tested by hydraulic pressure to 380 lbs. Date of test Mar. 26, 28, & April 2, 1942 No. of Certificate 16, 17 & 18 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 12.67 for ordinary valves as fitted 5.52 sq. in. 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 NO WOODWORK Is oil fuel carried in the double bottom under boilers NO

Smallest distance between shell of boiler and tank top plating 2 ft. 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 65000/75000 lbs. per sq. in.

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

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

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./sq.in. Smallest outside diameter 44 9/16"

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

Dimensions of stiffening rings on furnace or c.c. bottom NONE

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" 1 1/32"

How are stays secured DOUBLE NUTS

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

Mean pitch of stay tubes in nests 9.56" 9.7 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./sq.in. Depth and Thickness of girder at centre 10.25", 2 @ 7/8" Length as per Rule 2' 10" Distance apart 11" No. and pitch of stays in each 3 @ 7.625"

Combustion chamber plates: Material STEEL Tensile strength 58000/68000 lbs/sq.in. Thickness: Sides 25/32" Back 25/3" 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./sq.in.

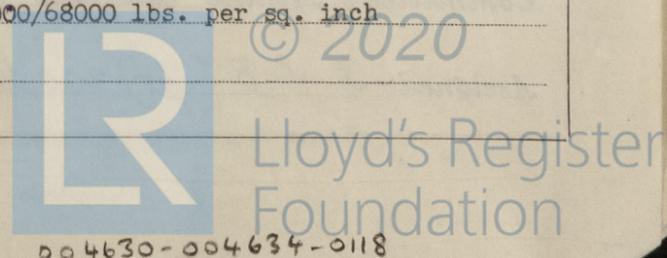
Thickness 1 1/32" Lower back plate: Material STEEL Tensile strength 58000/68000 lbs/sq.in. Thickness 1 1/32" in. Pitch of stays at wide water space 14 1/2" x 9" Are stays fitted with nuts NUTS & RIVETED OVER

Main stays: Material STEEL Tensile strength 65000/75000 lbs./sq.inch

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

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

Diameter {At turned off part or Over threads 1 7/8" sides, 1 3/4" back No. of threads per inch 9



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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 in end ---

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 TUBES CO. Steel forgings COMBUSTION ENGINEERING COMPANY Steel castings NONE

Superheater Co., East Chicago, Ind.

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

Material of headers SEAMLESS STEEL Tensile strength 60,000 lbs./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 casing gear NO

Pressure to which the safety valves are adjusted 220 lbs. per sq. inch Hydraulic test pressure: tubes 1000 lbs. per sq.in. forgings 440 lbs./ sq.in. and after assembly in place 380 lbs. / sq.in. Are drain cocks or 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,  
*R. S. Day* Manufacturer.

Dates of Survey { During progress of work in shops - - } January 9, 1942 to April 3, 1942 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) July 8th, 1941 NO

while building { During erection on board vessel - - - } April 10, to May 27, 1942 Total No. of visits 42

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, were constructed under Special Survey (See Seattle Boiler Reports Nos. 3475, 3476, and 3477 attached hereto), have now been fitted on board this 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 good and safe condition.

Survey Fee ... £ Inclusive fee { When applied for, 10 to be charged in { When received, 19 London For self and J. F. Robertson:  
*John Smith*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK AUG 12 1942  
 Assigned 3 S B (Sgt) 220 lbs.

