

# REPORT ON BOILERS.

Received at London Office - 8 SEP 1942

Date of writing Report AUGUST 6th, 1942 When handed in at <sup>Local</sup> Office AUGUST 6th, 1942 Port of RICHMOND, CALIFORNIA

No. in Survey held at RICHMOND, CALIFORNIA Date, First Survey MAY 25th, 1942 Last Survey JULY 27th, 1942

on the S. S. "OCEAN VANQUISHER" (Number of Visits 47) Tons { Gross 7174 Net 4272

Built at RICHMOND, CALIFORNIA By whom built TODD-CALIFORNIA SHIPBUILDING DIVISION Yard No. 28 When built 1942  
of THE PERMANENTE METALS CORPORATION

Engines made at HAMILTON, OHIO By whom made GENERAL MACHINERY CORPORATION Engine No. 6735 When made 1942

Boilers made at LOS ANGELES, CALIFORNIA By whom made WESTERN PIPE & STEEL COMPANY Boiler No. 55 When made 1942

Nominal Horse Power 505 Owners BRITISH GOVERNMENT Port belonging to LONDON

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

Manufacturers of Steel LUKENS STEEL COMPANY, BETHLEHEM STEEL COMPANY (Letter for Record S)

Total Heating Surface of Boilers 7174 sq. ft. total for 3 bls. Is forced draught fitted YES Coal or Oil fired COAL

No. and Description of Boilers 3 SCOTCH MULTITUBULAR Working Pressure 220

Tested by hydraulic pressure to 380 Date of test JUNE 6th, 42 No. of Certificate 55 Can each boiler be worked separately YES

Area of Firegrate in each boiler 43 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 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 15/16" 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. 4.25" inter. 10" long. seams 1.5"

Ang. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1.5" Pitch of rivets { 4.25" long. seams 1.5" 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 3' 5.57"

Length of plain part { top 9 3/16" Thickness of plates { crown 21/32" Description of longitudinal joint WELDED bottom 21/32"

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

Head plates in steam space: Material STEEL Tensile strength 58000/68000 lbs./sq. in. Thickness 1 1/32" R.D. Pitch of stays 21.25" x 21" 1 1/32"

How are stays secured DOUBLE NUTS

Side plates: Material { front STEEL Tensile strength 58000/68000 lbs./sq. in. Thickness { 1 1/32" back STEEL 58000/68000 " " 1 3/16"

Span pitch of stay tubes in nests 9.56" 8-7 Pitch across wide water spaces 14.5" x 8.25"

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

centre 10.25", 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./sq. in. Thickness: Sides 25/32" Back 23/32" Top 25/32" Bottom 25/32"

Pitch of stays to ditto: Sides 9" x 10 7/32" Back 9" x 9" Top 11" x 7 5/8" Are stays fitted with nuts or riveted over NUTS

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. per sq. in. Thickness 1 1/32"

Pitch of stays at wide water space 15" x 9" Are stays fitted with nuts ~~XXXXXX~~ NUTS

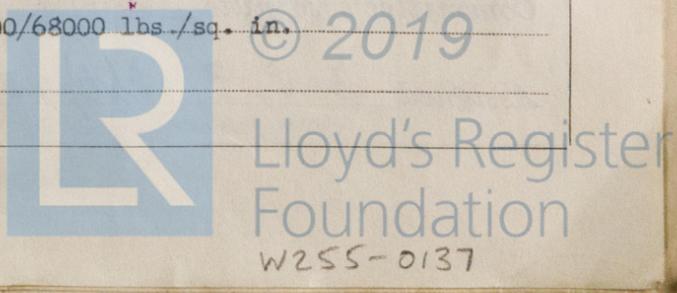
Top stays: Material STEEL Tensile strength 65000/75000 lbs./sq. in.

Diameter { At body of stay 3 1/2" No. of threads per inch 6 Over threads 3 3/4"

Lower stays: Material STEEL Tensile strength 58000/68000 lbs./sq. in.

Diameter { At turned off part -- No. of threads per inch 9 Over threads 1 7/8" SIDES, 1 3/4" BACK

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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

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

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 N. E. M. CO. Manufacturers of { Tubes DETROIT SEAMLESS STEEL TUBES COMPANY  
 Steel forgings COMBUSTION ENGINEERING COMPANY  
 Steel castings NONE

Number of elements 174 Material of tubes STEEL Internal diameter and thickness of tubes .689", .093"

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. in. 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 XXX

tubes 1,000 lbs./sq. in. forgings and castings 440 lbs. per sq. in. and after assembly in place 380 lbs. Are drain cocks YES

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,  
*John Findlay* Manufacturer

Dates of Survey { During progress of work in shops -- } MAY 23rd to JUNE 6th, 1942 Are the approved plans of boiler and superheater forwarded herewith NO  
 (If not state date of approval.) April 28th, 1941  
May 11th, 1941

{ During erection on board vessel --- } May 25th to JULY 7th, 1942 Total No. of visits 47

Is this Boiler a duplicate of a previous case YES If so, state Vessel's name and Report No. "OCEAN VIRTUE", Richmond Rpt. No. 2

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers were constructed under Special Survey (see Los Angeles Boiler Report No. 55, attached hereto), and 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 square 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, 19 --  
 Travelling Expenses (if any) £ to be charged { When received, 19 --  
 in London. FOR SELF AND J. FINDLAY:  
*John Findlay*  
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute NEW YORK AUG 26 1942  
 Assigned 3 S. B. (Sht) 220 lbs.

