

# REPORT ON BOILERS.

No. 12

Received at London Office

4 JUN 1942

Date of writing Report April 15th 1942 When handed in at ~~Local~~ Office April 15th 1942 Port of RICHMOND, CALIFORNIA

No. in Reg. Book. Survey held at RICHMOND, CALIFORNIA Date, First Survey January 7th, 1942 Last Survey March 18th 1942

on the S. S. "OCEAN VENUS" (Number of Visits 60) Tons { Gross 7174 Net 4272

Built at RICHMOND, CALIF. By whom built TODD-CALIFORNIA SHIPBUILDING DIVISION of the Yard No. 12 When built 1942  
Permanent Metals Corporation

Engines made at HAMILTON, OHIO By whom made GENERAL MACHINERY CORP. Engine No. 6536 When made 1941

Boilers made at LOS ANGELES, CALIF. By whom made WESTERN PIPE & STEEL CO. Boiler No. 22, 31, 32 When made 1941 - 1942

Nominal Horse Power 505 Owners BRITISH GOVERNMENT Port belonging to LONDON

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

Manufacturers of Steel LUKENS STEEL CO., BETHLEHEM 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 SCOTCH MULTITUBULAR Working Pressure 220

Tested by hydraulic pressure to 380 Date of test Reports See Los Angeles No. of Certificate 22, 31, 32 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"

Long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1.5" long. seams 1.5" Pitch of rivets { plate 4.25" rivets 10"

Percentage of strength of circ. end seams { plate 64.7 rivets 47 Percentage of strength of circ. intermediate seam { plate 85 rivets 93.4 combined 88.8

Percentage of strength of longitudinal joint { plate 85 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 58,000/68,000 lb./sq.in. Smallest outside diameter 3'-5.57"

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

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

End plates in steam space: Material STEEL Tensile strength 58,000/68,000 lbs. per sq.in. Thickness 1 1/32" R.D. Pitch of stays 21.25"x21" 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" Pitch across wide water spaces 14.5" x 8.25"

Girders 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"x10 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./sq.in. Thickness 1 1/32"

Pitch of stays at wide water space 15" x 9" Are stays fitted with nuts or riveted over NUTS

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

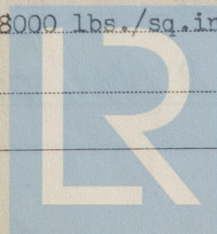
Diameter { At body of stay 3 1/2" No. of threads per inch 6

Over threads 3 3/4"

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

Diameter { At turned off part 1 7/8" 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, 2 1/8", 2" or Over threads 2 1/8", 2" Rpt

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

Outer row rivet pitch at ends --- Depth of flange if manhole flanged 3 3/4" Steam Dome: Material NONE No. Reg.

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

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

Internal diameter --- Thickness of crown --- No. and diameter of stays --- Inner radius of crown --- Engi

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 --- Boil

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

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

Material of headers SEAMLESS STEEL Tensile strength 60000 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 Manu

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

Pressure to which the safety valves are adjusted 220 lbs./sq.in. Hydraulic test pressure --- No.

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

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

TODD-CALIFORNIA SHIPBUILDING DIVISION of the Permanente Metals Corporation

The foregoing is a correct description.  
*[Signature]* Manufacture Small

Dates of Survey { During progress of work in shops - - } 6th Sept. 1941 to 8th Jan. 1942 Are the approved plans of boiler and superheater forwarded herewith NO (If not state date of approval.) April 28, 1941 - 5-11/41 Small

while building { During erection on board vessel - - - } 7th Jan. 1942 to March 18, 1942 Total No. of visits 60 Large

Is this Boiler a duplicate of a previous case YES If so, state Vessel's name and Report No. S.S. "OCEAN VANGUARD", "OCEAN VIGIL", "OCEAN VOICE", etc., Richmond, Calif. No. 1,2,3,4,5,6,7,8,9,10 and 11 Long. Percen

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers, constructed under Special

Survey (See Los Angeles Boiler Reports Nos. 22, 31, 32 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 ... £ 10 When applied for, 19

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

Committee's Minute NEW YORK MAY 13 1942

Assigned 3 S.B. (Cpt). 220 lbs.



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