

REPORT ON BOILERS.

Received at London Office 29 JUL 1943

of writing Report 6th May, 1943 When handed in at Local Office 6th May, 1943 Port of Vancouver, B. C.

Survey held at Vancouver, B. C. Date, First Survey 24th March, 1943 Last Survey 6th May, 1943

(Number of Visits 20) Tons { Gross 7131.92 Net 4244.83

on the Steel Single Screw Steamer "FORT CARIBOU"

Built at Vancouver, B.C. By whom built Burrard Dry Dock Co. Ltd. Yard No. 171 When built 1943

Lines made at Montreal, P.Q. By whom made Canadian-Allis Chalmers, Ltd. Engine No. 235 When made 1943

Boilers made at Vancouver, B. C. By whom made Dominion Bridge Co. Ltd. Boiler No. (413, 415, 420) When made 1943

Original Horse Power 504 Owners Minister of Munitions & Supply of Canada. Port belonging to Canada.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY

Manufacturers of Steel Worth Steel Co., Lukens Steel Co., American Welding Co., & Bethlehem Steel Co. (Letter for Record --) Total Heating Surface of Boilers 7140 sq. ft. Is forced draught fitted Yes Coal or Oil fired Coal

Name and Description of Boilers Three single ended cylindrical multitubular Working Pressure 220 lbs.

Tested by hydraulic pressure to 380 lbs. Date of test { 5-4-43, 7-4-43, 10-4-43 No. of Certificate { 413, 415, 420 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 51 sq. ft. No. and Description of safety valves to each boiler Two - 2-1/4" dia. Morrison High lift

Area of each set of valves per boiler { per Rule 6.35 sq. ins., as fitted 7.95 sq. ins. Pressure to which they are adjusted 220 Are they fitted with easing gear Yes

Case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork 2 ft. 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 dia. of boilers 14'-6-3/16" Length 11'-9" ext. Shell plates: Material O.H. Steel Tensile strength 29-33 tons

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

Long. seams Treble Riv. Double butt straps. Diameter of rivet holes in { circ. seams 1-1/2", long. seams 1-1/2" Pitch of rivets { 4-3/16" approx., 10-1/16"

Percentage of strength of circ. end seams { plate 64.2%, rivets 47.6% Percentage of strength of circ. intermediate seam { plate --, rivets --

Percentage of strength of longitudinal joint { plate 85.1%, rivets 92.8%, combined 88.7% Working pressure of shell by Rules --

Thickness of butt straps { outer 1-3/32, inner 1-7/32 No. and Description of Furnaces in each Boiler 3 Morrison corrugated Stephen Gourley end

Material O.H. Steel Tensile strength 26 - 30 tons Smallest outside diameter 41-9/16"

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

Dimensions of stiffening rings on furnace or c.c. bottom -- Working pressure of furnace by Rules --

End plates in steam space: Material O.H. Steel Tensile strength 26 - 30 tons Thickness 1-7/16" Pitch of stays 21" x 21"

How are stays secured Double nuts & 6-3/4" x 1/4" washers each end. Working pressure by Rules --

Tube plates: Material { front O.H. Steel, back O.H. Steel Tensile strength { 26 - 30 tons Thickness { 31/32, 13/16

Mean pitch of stay tubes in nests 9.82" Pitch across wide water spaces 8-1/4" x 14-1/2" Working Pressure { front --, back --

Orders to combustion chamber tops: Material O.H. Steel Tensile strength 29 - 33 tons Depth and thickness of girder

Double centre 10-1/4" x 7/8" Length as per Rule 34" Distance apart 11" No. and pitch of stays

each 3 - 7-5/8 Working pressure by Rules -- Combustion chamber plates: Material O.H. Steel

Tensile strength 26 - 30 tons Thickness: Sides 25/32 Back 23/32 Top 25/32 Bottom 25/32

Pitch of stays to ditto: Sides 9" x 10-3/16" Back 9" x 8 1/2" Cent CC Top 7-5/8" x 11" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules -- Front plate at bottom: Material O.H. Steel Tensile strength 26 - 30 tons

Thickness 31/32" Lower back plate: Material O.H. Steel Tensile strength 26 - 30 tons Thickness 29/32

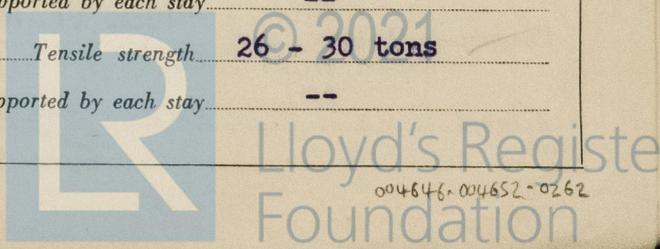
Pitch of stays at wide water space 9" x 14-1/2" Are stays fitted with nuts or riveted over Nuts

Working pressure -- Main stays: Material O.H. Steel Tensile strength 28 - 32 tons

Diameter { At body of stay 3-1/2", or Over threads 3-3/4" No. of threads per inch 6 Area supported by each stay --

Working pressure by Rules -- Screw stays: Material O.H. Steel Tensile strength 26 - 30 tons

Diameter { At turned off part 1.606, or Over threads 1-3/4" No. of threads per inch 9 Area supported by each stay --



Working pressure by Rules. -- Are the stays drilled at the outer ends **No** Margin stays: Diameter { At turned off part, **1.856"** or Over threads. **2"**

No. of threads per inch **9** Area supported by each stay -- Working pressure by Rules. --

Tubes: Material **O.H. Steel** External diameter { Plain **3"** Stay **3"** Thickness { **.16"** No. of threads per inch **9**

Pitch of tubes **4-1/8" x 4-1/4"** Working pressure by Rules. -- Manhole compensation: Size of opening

end plate **16" x 12"** Section of compensating ring. -- No. of rivets and diameter of rivet holes. --

Outer row rivet pitch at ends. -- Depth of flange if manhole flanged **4-1/4"** **3-1/2"** Steam Dome: Material. --

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. -- Working pressure by Rules. -- Thickness of crown. -- No. and diameter of stays. --

How connected to shell. -- Inner radius of crown. -- Working pressure by Rules. --

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" Smoke box type** Manufacturers of { Tubes. -- Steel forgings. **(National Tube Co.,** Steel castings. **(Pittsburg, Penna.)**

Number of elements **58** Material of tubes **S.D. Steel** Internal diameter and thickness of tubes. **.69"** **.095"** (BBWG)

Material of headers **O.H. Steel** Tensile strength **33.5 tons** Thickness **1-1/8" min.** Can the superheater be shut off 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. **Yes**

Area of each safety valve **1.75 per sq. inch** Are the safety valves fitted with easing gear. **Yes** Working pressure as Rules. -- Pressure to which the safety valves are adjusted **220 lbs. per sq. inch** Hydraulic test pressure tubes **2500 lbs. per sq. inch.** forgings and castings **550 lbs. per sq. inch.** and after assembly in place. **Steam test** 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,
Dominion Bridge Co Ltd Manufactured by
J. H. ...
 Are the approved plans of boiler and superheater forwarded herewith **Approved** Plans in U.K.
 (If not state date of approval.)
 Total No. of visits **20**

Dates of Survey while building { During progress of work in shops -- } **1943. March 24, 25, 27, 30. April 1, 5, 7, 10.**
 { During erection on board vessel -- } **1943. April 15, 16, 19, 20, 26, 28, 30. May 1, 3, 4, 5, 6.**

Is this Boiler a duplicate of a previous case **Yes** If so, state Vessel's name and Report No. **S.S. "FORT ST. JAMES" (Vcr. Report No. 5718)**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

These boilers have been constructed under special survey of tested materials in accordance with the approved plans, New York letters and otherwise in conformity with the Society's Rules. On completion the boilers were satisfactorily tested under hydraulic pressure to 380 lbs. per sq. inch.

They were fitted on board under Special Survey, examined under working conditions, safety valves adjusted under steam to the working pressure and a satisfactory accumulation test carried out.

Cross seam of both end plates is fusion welded by Union Melt Process, stress relieved and x-rayed under survey.

Welds ground flush both sides of plate.

Combustion chamber wrapper plates welded to back tube plate and combustion chamber back plate; wrapper plate butts also welded, all hand welding and ground flush and tested as per Rules.

Survey Fee ... **\$150.00** } When applied for **6th May, 1943**
 Travelling Expenses (if any) **\$ 15.00** } When received **19**

R. H. ... & *W. C. Baillie*
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute **TUES. 17 AUG 1943**

Assigned *see minute on 33 Rpt.*

