

## REPORT ON BOILERS.

No. 5759.

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Date of writing Report JUNE 10<sup>th</sup> 1942 When handed in at Local Office JUNE 10<sup>th</sup> 1942 Port of VANCOUVER B.C.

No. in Reg. Book. Surrey held at VANCOUVER B.C.

Date, First Survey DEC. 4<sup>th</sup> 1942Last Survey JUNE 4<sup>th</sup> 1942

on the STEEL SINGLE SCREW STEAMER "FORT ELLICE"

(Number of Visits 20)

Gross 7129.24

Net 4254.74

Master Built at NORTH VANCOUVER By whom built BURRARD DRY DOCK CO. LTD. Yard No. 135 When built 1942

Engines made at MONTREAL P.Q. By whom made DOMINION ENGINEERING Engine No. 14 When made 1942

Boilers made at VANCOUVER B.C. By whom made DOMINION BRIDGE CO. LTD. Boiler No. 162 When made 1942

Nominal Horse Power 504 Owners H. M. GOVERNMENT, IN U.K. Port belonging to

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

Manufacturers of Steel NORTH STEEL CO. LUKENS STEEL CO. AMERICAN WELDING CO. BETHLEHEM STEEL CO. (Letter for Record)

Total Heating Surface of Boilers 2380 SQ. FT. 7140 SQ. FT. TOTAL Is forced draught fitted YES

Coal or Oil fired COAL

No. and Description of Boilers THREE SINGLE ENDED CYLINDRICAL MULTITUBULAR

Working Pressure 220 LBS. □"

Tested by hydraulic pressure to 380 LBS. □" Date of test 24-3-42 No. of Certificate 162 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 7.5 sq. ins. as fitted 7.9 sq. ins. 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 NO DONKEY BOILERS

Smallest distance between boilers or uptakes and bunkers or woodwork 10 FEET. 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 dia. of boilers 14'-6 3/16" Length 11'-9" EXT. Shell plates: Material O.H. STEEL Tensile strength 29-33 TONS

Thickness 1 3/32" Are the shell plates welded or flanged No Description of riveting: circ. seams {end DOUBLE inter. 4 3/16" APPROX. 10 1/16"

long. seams DOUBLE RIVETED DOUBLE BUTT Joints Diameter of rivet holes in {circ. seams 1 1/2" long. seams 1 1/2" Pitch of rivets {plate 4 3/16" APPROX. rivets 10 1/16"

Percentage of strength of circ. end seams {plate 44.2% rivets 47.6% 46.67 Percentage of strength of circ. intermediate seam {plate 85.1% rivets 92.8% 88.77

Percentage of strength of longitudinal joint {plate 85.1% rivets 92.8% 88.77 Working pressure of shell by Rules 221 1/2 LBS. □"

Thickness of butt straps {outer 1 3/32" inner 1 3/32" No. and Description of Furnaces in each Boiler 3 MORRISON CORRUGATED, STEPHEN COURLEY END

Material O.H. STEEL Tensile strength 26-30 TONS. Smallest outside diameter 41 3/16"

Length of plain part {top 9 3/16" bottom 9 3/16" Thickness of plates {crown 2 1/8" bottom 3/32" Description of longitudinal joint BEGG WELD.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 230 1/2 LBS.

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 &amp; 6 3/8" x 1/4" WASHERS EACH END Working pressure by Rules 220 LBS.

Tube plates: Material {front O.H. STEEL back O.H. STEEL Tensile strength {26-30 TONS Thickness {3 3/32" 1 3/16"

Mean pitch of stay tubes in nests 9-82 Pitch across wide water spaces 8 1/4" x 14 1/2" Working pressure {front (W. SPACE) 232 LBS. back 247 LBS.

Girders to combustion chamber tops: Material O.H. STEEL Tensile strength 29-33 TONS Depth and thickness of girder

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

in each 3-7 1/8" Working pressure by Rules 229 LBS. Combustion chamber plates: Material O.H. STEEL

Tensile strength 26-30 TONS Thickness: Sides 25" Back 2 3/32" Top 2 3/32" Bottom 2 3/32"

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

Working pressure by Rules 224 LBS. Front plate at bottom: Material O.H. STEEL Tensile strength 26-30 TONS

Thickness 3 1/2" Lower back plate: Material O.H. STEEL Tensile strength 26-30 TONS Thickness 2 3/32"

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

Working Pressure 232 LBS. Main stays: Material O.H. STEEL Tensile strength 28-32 TONS

Diameter {At body of stay, 3 1/2" No. of threads per inch 6 Area supported by each stay 441 SQ. INS. Over threads 3 3/4" Tensile strength 26-30 TONS

Working pressure by Rules 245 LBS.

Screw stays: Material O.H. STEEL Tensile strength 26-30 TONS

Diameter {At turned off part, 1.606 No. of threads per inch 9 Area supported by each stay 81 SQ. INS. Over threads 1 3/4" Tensile strength 26-30 TONS



Working pressure by Rules 224 LBS Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part, 1.856</sup><sub>or</sub> 2"  
No. of threads per inch 9 Area supported by each stay 91.7 sq. in. max Working pressure by Rules 232 LBS  
Tubes: Material O.H. STEEL External diameter <sup>Plain</sup> 3" Thickness <sup>1/16</sup> 3/8" - 5/16" No. of threads per inch 9  
Pitch of tubes 4 1/8" x 4 1/4" Working pressure by Rules 234 LBS. Manhole compensation: Size of opening in  
Shell plate 16" x 12" Section of compensating ring UPPER 4 1/2" LOWER 3 1/2" No. of rivets and diameter of rivet holes ---  
Outer row rivet pitch at ends --- Depth of flange if manhole flanged --- Steam Dome: Material ---  
Tensile strength --- Thickness of shell --- Description of longitudinal joint ---  
Diameter of rivet holes --- Pitch of rivets --- Percentage of strength of joint <sup>Plate</sup> ---  
Internal diameter --- Working pressure by Rules --- Thickness of crown --- No. and diameter of  
stays --- Inner radius of crown --- Working pressure by Rules ---  
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 "ELPSCO" Snake Box Type Manufacturers of Tubes NATIONAL TUBE CO.  
Number of elements 58 Material of tubes S.D. STEEL Steel castings PITTSBURG PENN  
Material of headers O.H. STEEL Tensile strength 33.5 TENS Thickness 1/8" Internal diameter and thickness of tubes .69" - .096 (35 W.G.)  
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 Can the superheater be shut off and  
Area of each safety valve 1.75 sq" Are the safety valves fitted with easing gear YES Working pressure as per  
Rules 220 LBS. sq" Pressure to which the safety valves are adjusted 220 LBS. sq" Hydraulic test pressure:  
tubes 500 LBS. sq" castings 600 LBS. sq" and after assembly in place 440 LBS. sq" Are drain cocks or valves fitted  
to free the superheater from water where necessary YES.

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with YES.

The foregoing is a correct description,  
Dominion Bridge Co. Ltd Manufacturer.

Dates of Survey <sup>DEC. 1941</sup>  
During progress of work in shops - - 4-6-12-17-22-30 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Plan - 41  
while building <sup>Nov.</sup> During erection on board vessel - - 9-14-15-20-21-22-23-24-28-29-30. Total No. of visits 20  
<sup>June.</sup> 1-3-4.

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

These boilers have been constructed under special Survey of tested material 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. sq". They were fitted on board under special Survey, examined under working conditions. Safety valves adjusted under steam to the working pressure and satisfactory accumulation test carried out.

Cross seam of both end plates in fusion welded by Union Melt process, stress relieved and X rayed under survey. Certificates attached. welds ground flush both sides of plate.

Combustion chamber wrapper plates welded to back tube plates and C.C. Back plates. Wrapper plate butts welded. Welding carried out by hand. E.T. process and tested under survey and all ground flush both sides.

Survey Fee \$ 150.00 When applied for, 4.6.1942 RB  
Travelling Expenses (if any) \$ 15.00 When received, ✓ 192

R. Knox & W. E. Baillie  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See Tr. No. 5759



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Foundation