

## REPORT ON BOILERS.

No. 5742.

Received at London Office

17 JUN 1942

Date of writing Report MAY 2<sup>nd</sup> 1942 When handed in at Local Office MAY 2<sup>nd</sup> 1942 Port of VANCOUVER B.C.

No. in Reg. Book. Survey held at NORTH VANCOUVER B.C. Date, First Survey Nov. 15/41 Last Survey May 2<sup>nd</sup> 1942  
 on the STEEL SINGLE SCREW STEAMER "FORT FRASER" (Number of Visits 34) Gross Tons 7125.74  
 Net Tons 4254.28

Master ✓ Built at NORTH VANCOUVER By whom built BURRARD DRY DOCK CO. LTD. Yard No. 136 When built 1942  
 Engines made at MONTREAL P.Q. By whom made DOMINION ENGINEERING WORKS LTD. Engine No. 9 When made 1941  
 Boilers made at VANCOUVER B.C. By whom made DOMINION BRIDGE CO. LTD. Boiler No. 128  
129 When made 1941  
130  
 Nominal Horse Power 504 505 Owners HM Government in the United Kingdom Port belonging to —

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

Manufacturers of Steel WORTH STEEL CO. LUKINS STEEL CO.  
AMERICAN WELDING CO. BETHLEHEM STEEL CO. (Letter for Record —)

Total Heating Surface of Boilers 2380 SQ. FT. EACH 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. P.

Tested by hydraulic pressure to 380 LBS Date of test 17/12/41 No. of Certificate 128 Can each boiler be worked separately YES  
22-1-41 129  
30-12-41 130

Area of Firegrate in each Boiler 51.80 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. 12.67 for ordinary valves Pressure to which they are adjusted 220 LBS Are they fitted with easing gear YES  
as fitted 7.96 SQ. INS.

In 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 10 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 3/8" Length 11'-9" EXT. Shell plates: Material O.H. STEEL Tensile strength 29-33 TONS

Thickness 1 1/32" Are the shell plates welded or flanged NO Description of riveting: circ. seams DOUBLE  
1 1/2" 1 1/2" 4 3/16" APPROX  
10 1/16"

long. seams TREBLE RIV. DOUBLE BUTT STRAP Diameter of rivet holes in circ. seams 1 1/2" Pitch of rivets 4 3/16" APPROX  
long. seams 1 1/2"

Percentage of strength of circ. end seams plate 64.2% rivets 47.6% Percentage of strength of circ. intermediate seam plate 85.1% rivets 92.8%  
combined 88.7%

Percentage of strength of longitudinal joint plate 85.1% rivets 92.8% Working pressure of shell by Rules 221.2 LBS.  
combined 88.7%

Thickness of butt straps outer 1 3/32" inner 1 3/32" No. and Description of Furnaces in each Boiler 3 MORRISONS CORRUGATED STEPHEN GOULLEY END

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

Length of plain part top 9 7/16" bottom 9 3/16" Thickness of plates top 2 1/32" bottom 2 1/32" Description of longitudinal joint FORGE WELD

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 230.9 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 - 6 3/4 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 1/32" 1 1/16"

Mean pitch of stay tubes in nests 9.82" 9.7 Pitch across wide water spaces 8 1/4" x 14 1/2" Working pressure front (W.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 DOUBLE 10 1/4 x 7 1/2"  
at centre 10 1/4 x 7 1/2" Length as per Rule 34" Distance apart 11" No. and pitch of stays 3- 7 5/8"

Working pressure by Rules 229 LBS. 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 1/4" CENT. CC Top 7 5/8" 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 3/32" 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 232 LBS Main stays: Material O.H. STEEL Tensile strength 28-32 TONS

Diameter At body of stay, 3 1/2" Over threads, 3 3/4" No. of threads per inch 6 Area supported by each stay 441 SQ. INS.

Working pressure by Rules 245 LBS. Screw stays: Material O.H. STEEL Tensile strength 26-30 TONS

Diameter At turned off part, 4.606" Over threads, 1 3/4" No. of threads per inch 9 Area supported by each stay 81 SQ. INS.



Working pressure by Rules **224 LBs** Are the stays drilled at the outer ends **No** Margin stays: Diameter { At turned off part, **1.856**  
Over threads **2"**

No. of threads per inch **9** Area supported by each stay **91.7 SQ. INS.** Working pressure by Rules **232 LBs**

Tubes: Material **O.H. STEEL** External diameter { Plain **3"**  
Stay **5"** Thickness { **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  
END shell 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 ☒ 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 **"ELESCO" SMOKE BOX TYPE** Manufacturers of { Tubes **NATIONAL TUBE CO.**  
Steel castings **PITTSBURGH, PENN.**

Number of elements **58** Material of tubes **S.D. STEEL** Internal diameter and thickness of tubes **.69" .095" (B.B.W.G.)**

Material of headers **O.H. STEEL** Tensile strength **33.5 TONS.** 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 **YES**

Area of each safety valve **1.767 SQ. INS.** Are the safety valves fitted with easing gear **YES** Working pressure as per  
Rules **220 LBs □"** Pressure to which the safety valves are adjusted **220 LBs □"** Hydraulic test pressure:  
tubes **1500 LBs □"** castings **600 LBs □"** and after assembly in place **440 LBs.** 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 { During progress of work in shops - **Nov. 15-19-25-28** **DEC. 3-6-10-12-18-17-22-30** **FEB. 25-26-27**  
while building { During erection on board vessel - **MAR. 12-28-30** **APRIL 1-5-6-9-12-13-14-15-16-17-18-20-22-23-24**  
**MAY 2.** Are the approved plans of boiler and superheater forwarded herewith  
(If not state date of approval.) Total No. of visits **34**

# 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. □"** 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.

Gross Seam of both end plates is fusion welded by Union Melt process, stress relieved and x rayed under Survey. Certificate attached. Welds ground flush both sides of plate.

Survey Fee ... **\$ 150<sup>00</sup>** : When applied for, **28. 4** **1942** **RB**  
Travelling Expenses (if any) **\$ 15<sup>00</sup>** : When received, ☒ **192**

**R. Knox W.C. Baillie**  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE. 23 JUN 1942**

Assigned

See Ver. **76.5742**



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