

REPORT ON BOILERS.

Received at London Office. 7 JUN 1943

Date of writing Report **16th April, 1943** When handed in at **Local Office** **16th Apr., 1943** Port of **Vancouver, B. C.**

No. in Reg. Book. Survey held at **Vancouver, B. C.** Date, First Survey **Feb. 24th/43** Last Survey **Apr. 5th, 1943**

on the **Steel Single Screw Steamer "FORT ENTERPRISE"** (Number of Visits **15**) Tons { Gross **7125.66** Net **4247.86**

Built at **Vancouver, B. C.** By whom built **West Coast Shipbuilders, Ltd.** Yard No. **117** When built **1943**

Engines made at **Montreal, P.Q.** By whom made **Dominion Engineering Co. Ltd.** Engine No. **77** When made **1943**

Boilers made at **Vancouver, B. C.** By whom made **Vancouver Iron Works, Ltd.** Boiler No. **(386, 390, 391)** When made **1943**

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

MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY OR DONKEY~~

Manufacturers of Steel **Worth Steel Co., American Welding Co., Lukens Steel Co., Algoma Steel Co., Steel Co. of Canada, & Page-Hersey.** (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 **Three Single ended cylindrical multitubular** Working Pressure **220 lbs.**

Tested by hydraulic pressure to **380 lbs.** Date of test **11-3-43** No. of Certificate **386, 390, 391** 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 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 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 diameter 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. **4-3/16" approx.**

Long. seams **Treble Riveted Double Butt Straps.** Diameter of rivet holes in { circ. seams **1-1/2"** long. seams **1-1/2"** Pitch of rivets { **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%**

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 **10"** bottom **10"** Thickness of plates { crown **21/32"** bottom **21/32"** Description of longitudinal joint **Forge Weld**

Dimensions of stiffening rings on furnace or c.c. bottom **--** Blr.No.386 Thickness **1-7/16** Pitch of stays **21" x 21"**

End plates in steam space: Material **O.H. Steel** Tensile strength **26 - 30 tons** Blr.Nos.390 & 391 - **1-1/32** with **1-1/32** Riveted Doubler.

How are stays secured **Double nuts and 6-3/4" x 1/4" washers each end.** Blr.No.386 - **31/32** (Blr.Nos 390 & 391) **(1-1/32)**

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

Mean pitch of stay tubes in nests **9.82"** Pitch across wide water spaces **8-1/4" x 14-1/2"**

Girders to combustion chamber tops: Material **O.H. Steel** Tensile strength **29 - 33 tons** Depth and Thickness of girder **(Double 11" x 7/8"**

at centre **11" x 7/8"** Length as per Rule **34"** Distance apart **11"** No. and pitch of stays **3 - 7-5/8**

in each **3 - 7-5/8** 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"x10-3/16"** Back **9"x8 1/2" CentCC** Top **7-5/8" x 11"** Are stays fitted with nuts or riveted over **nuts**

Front plate at bottom: Material **O.H. Steel** Tensile strength **26 - 30 tons** Blr. No.386 Thickness **31/32"**

Lower back plate: Material **O.H. Steel** Tensile strength **26 - 30 tons** Thickness **29/32"** Blr.Nos. 390 & 391 - **1-1/32"**

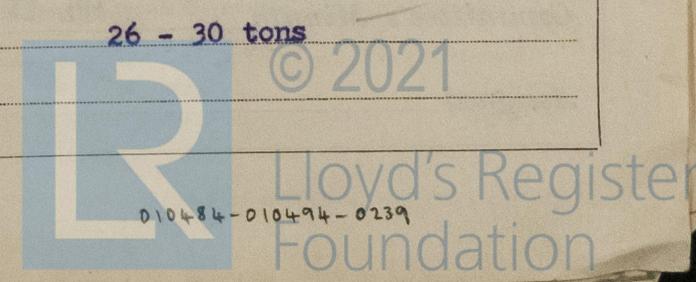
Pitch of stays at wide water space **9" x 14-1/2"** Are stays fitted with nuts or riveted over **nuts**

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

Diameter { At body of stay, **3-1/2"** or **3-3/4"** No. of threads per inch **6**

Screw stays: Material **O.H. Steel** Tensile strength **26 - 30 tons**

Diameter { At turned off part, **1.606** or **1-3/4"** No. of threads per inch **9**



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

Tubes: Material O.H. Steel External diameter { Plain 3" Stay 3" Thickness { .16" 3/8" & 5/16" No. of threads per inch 9

Pitch of tubes 4-1/8" x 4-1/4" Manhole compensation: Size of opening in End

Shell plate 16" x 12" Section of compensating ring -- Upper No. of rivets and diameter of rivet holes -- Lower --

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 -- Thickness of crown -- No. and diameter of stays --

How connected to shell -- 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 "ELESCO" Smoke box type Manufacturers of { Tubes (National Tube Co., Steel forgings (Pittsburg, Penna. Steel castings --

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

Material of headers O.H. Steel Tensile strength 33.5 tons Thickness 1-1/8" min. 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 1.75 per sq. inch Are the safety valves fitted with easing gear Yes

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 or 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,
VANCOUVER IRON WORKS LTD. Manufacturer.

Dates of Survey { During progress of work in shops -- } 1943. Feb. 24, 25, 26, 27. Mar. 3, 11, 12. Are the approved plans of boiler and superheater forwarded herewith 2/1/42 (If not state date of approval) Riveted doublers to end plates approved 16/1/43

while building { During erection on board vessel -- } 1943. Mar. 4, 17, 24, 26, 27, 30. Apr. 2, 5. Total No. of visits 15

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. S.S. "FORT CHILCOTIN" (Vcr. Report No. 5764)

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. 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 seams of both end plates of Boiler No. 386 are fusion welded by Union Melt Process, stress relieved under survey, welds ground flush both sides of plate. Boiler Nos. 390 and 391 has end plates 1-1/32" thick without cross seam, with 1-1/32" riveted doubler in steam space. Combustion chamber wrapper plate welded to back tube plate and combustion chamber back plate; wrapper plate butts also welded, all by Union Melt Electric Process.

Furnaces hand electric welded to back tube plate (butt welds) and 2" lap welds to lower front end plate. All welding ground flush on both sides and tested as per Rule.

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

R. R. Knowlton
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 11 JUN 1943

Assigned See F. E. Moby Rpt.



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