

REPORT ON BOILERS.

No. 5902

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 (Number of Visits 15)

on the Steel Single Screw Steamer "FORT ENTERPRISE" 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 Port belonging to of Canada.

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 --)

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 390 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. Pitch of rivets { 10-1/16"

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

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 and 6-3/4" x 1/4" washers each end. Blr.Nos.390 & 391 - 1-1/32" with 1-1/32" Riveted Doubler.

Tube plates: Material { front O.H. Steel Tensile strength 26 - 30 tons Thickness Blr.No.386 - 31/32" { 390 & 391 { 1-1/32"

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" Length as per Rule 34" Distance apart 11" No. and pitch of stays

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 2"
Over threads. 2"

No. of threads per inch 9

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" Manhole compensation: Size of opening in

End 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 -- 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 { During progress of 1943.
of Survey { work in shops -- Feb. 24, 25, 26, 27.
while { Mar. 3, 11, 12.
building { During erection on 1943.- Mar. 4, 17, 24, 26, 27, 30 Total No. of visits 15
board vessel -- Apr. 2, 5.

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.

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

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 11 JUN 1943

Assigned

See F. E. McIny Rpt.



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Foundation