

Rpt. 4.

## REPORT ON MACHINERY

Specified at Local Office

Date of writing Report Jan. 20 1919 When made at Local Office

Port of New York

No. in Survey held at Bayonne N. J. &amp; Jersey City - Date, First Survey Feb-27th-1919 Last Survey

Reg. Book.

on the Boilers &amp; Machinery for the National S.B.C. Ss "NATENNA"

(Number of Vessels)

Tons { Net  
When built 1919

Master H. Dooley

Built at Orange, Texas.

By whom built National Shipbuilding Co.

Engines made at

New City - N. J.

By whom made

Vulcan Iron Works Inc

when made 1919-

Boilers made at

Bayonne N. J.

By whom made

Babcock &amp; Wilcox Co

when made 1919-

Registered Horse Power 295.7

Owners Emergency Fleet Corporation

Port belonging to Orange, Texas.

Nom. Horse Power as per Section 28 295.7

Is Refrigerating Machinery fitted for cargo purposes No.

Is Electric Light fitted Yes

## ENGINES, &amp;c.—Description of Engines

Triple Expansion Condensing

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 19-32-54

Length of Stroke 36

Revs. per minute 100

Dia. of Screw shaft

as per rule 11.53

Material of

Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

No

Is the after end of the liner made water tight

in the propeller boss

Yes

If the liner is in more than one length are the joints burned

Yes

If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

Yes

If two

liners are fitted, is the shaft lapped or protected between the liners

Length of stern bush 3'-11"

Dia. of Tunnel shaft

as per rule 10.01

Dia. of Crank shaft journals

as per rule 10.5

Dia. of Crank pin 10 3/4

Size of Crank webs 7 1/2 x 2 1/2

Dia. of thrust shaft under

collars 10 3/4

Dia. of screw 14-6

Pitch of Screw 11-10

No. of Blades 4

State whether moveable No

Total surface 69 sq

No. of Feed pumps 2

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Bilge pumps 3

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Donkey Engines 3

SIZES OF PUMPS

10 x 6 x 10

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2.

2 1/2 dia.

Stokehold 2.

2 1/2

In Holds, &amp;c.

Six, 2 1/2"

No. of Bilge Injections /

sizes 6

Connected to circulating pump

Yes

Is a separate Donkey Suction fitted in Engine room &amp; size

Yes. 5"

Are all the bilge suction pipes fitted with roses

Yes

Are the roses in Engine room always accessible

Yes

Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship

Yes

Are they Valves or Cocks

Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates

Yes

Are the Discharge Pipes above or below the deep water line

Below

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

Yes

Are the Blow Off Cocks fitted with a spigot and brass covering plate

Yes

What pipes are carried through the bunkers Fore peak, deep tank &amp; hold bilges

How are they protected

By side of Steel Keelson

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Yes

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Yes

Is the Screw Shaft Tunnel watertight

Is it fitted with a watertight door

worked from

BOILERS, &amp;c.—(Letter for record S.)

Manufacturers of Steel

North Bros. Coatesville Pa.

Total Heating Surface of Boilers 5800 sq

Is Forced Draft fitted

No. and Description of Boilers

Two, Water tube

Working Pressure 200 lbs.

Tested by hydraulic pressure to

400 lbs.

Date of test

June-5th-19

No. of Certificate

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

87 sq

No. and Description of Safety Valves to

each boiler Two, Ashcroft's

Area of each valve

7.06

Pressure to which they are adjusted

200

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

8"

Mean dia. of

boilers 42"

Length 14'-7 3/8"

Material of shell plates

Steel

Thickness 1/2"

Range of tensile strength

65000

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

S.R.LAP.

long. seams

D.R.D.B.S.

Diameter of rivet holes in long. seams

29/32

Pitch of rivets

2 3/4"

Length of plates or width of butt straps

Culch 9 3/4"

Stitch 15 1/2"

Per centages of strength of longitudinal joint

plate

80%

Working pressure of shell by rules

243 lbs

Size of manhole in shell

15 x 11"

Size of compensating ring

Flange ring

No. and Description of Furnaces in each boiler

No.

Description of longitudinal joint

No. of strengthening rings

Length of plain part

top

Thickness of plates

bottom

Description of longitudinal joint

No. of strengthening rings

Working pressure of furnace by the rules

Combustion chamber plates: Material

Thickness: Sides

Back

Top

If stays are fitted with nuts or riveted heads

Working pressure by rules

End plates in steam space:

Pitch of stays to ditto: Sides

Back

Top

Working pressure by rules

End plates in steam space:

Material of stays

Area at smallest part

Area supported by each stay

Working pressure by rules

End plates in steam space:

Material Steel

Thickness 1/32"

Pitch of stays

How are stays secured

Dished ends

Working pressure by rules

204 lbs

Material of stays

Material of Front plates at bottom

Area at smallest part

Area supported by each stay

Working pressure by rules

Material of Front plates at bottom

Working pressure of plate by rules

Thickness

Material of Lower back plate

Thickness

Greatest pitch of stays

Working pressure of plate by rules

Diameter of tubes

Pitch of tubes

Material of tube plates

Thickness: Front

Back

Mean pitch of stays

Pitch across wide water spaces

Working pressures by rules

Girders to Chamber tops: Material

Depth and

thickness of girder at centre

Length as per rule

Distance apart

Number and pitch of stays in each

% of strength of joint

Working pressure by rules

Steam dome: description of joint to shell

Diam. of rivet holes

Description of longitudinal joint

How stayed

Diameter

Thickness of shell plates

Material

Description of longitudinal joint

How stayed

Pitch of rivets

Working pressure of shell by rules

Crown plates

Thickness

How stayed

SUPERHEATER. Type

Not fitted

Date of Approval of Plan

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Date of Test

Is Easing Gear fitted

Diameter of Safety Valve

Pressure to which each is adjusted

Is Easing Gear fitted

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Pressure to which each is adjusted



BOILER FITTED? No. If so, is a report now forwarded?

State the articles supplied:— One propeller, 2 top end bolts 4 nuts: 2 bottom end bolts 4 nuts: one set of crank shaft coupling bolts 4 nuts: one set of stern coupling bolts 4 nuts: one set of top end frames: one set of crank pin braces: 50 lbs of Babbitt metal one eccentric crank complete: bolts 4 nuts for same: two eccentric rod slides 4 nuts: 6 trunk ring slides 4 nuts: 2 valve spindle nuts: 6 guides cover slides 4 nuts: 6 steam chest cover slides 4 nuts: 3 cylinder relief valve springs: assorted bolts 4 nuts: 500 lbs of iron of various sizes: one set of piston rod packing rings one set of ditto for valve spindles. Spare set of Feed and Bilge pump valves.

The foregoing is a correct description,  
VULCAN IRONWORKS, INC.  
FOOT OF MORRIS STREET,  
JERSEY CITY, N. J.

The Babcock & Wilcox Co  
per J. Stenger Marine Dept

Dates of Survey while building { During progress of work in shops -- 1918 Jan 7, 16, 28 Feb 27 May 9 July 30 Aug 7, 12 Sep 3 Oct 29 Nov 12, 15, 25 Dec 2, 9, 16, 24 1919 Jan 6, 14  
During erection on board vessel ---  
Total No. of visits

Is the approved plan of main boiler forwarded herewith 70

Dates of Examination of principal parts—Cylinders 24/12/18 Slides 6/1/19 Covers 6/1/19 Pistons 14/1/19 Rods 14/1/19  
Connecting rods 14/1/19 Crank shaft 24/12/18 Thrust shaft 6/1/19 Tunnel shafts Screw shaft Propeller 25/1/19  
Stern tube 3/9/19 Steam pipes tested 6/17/19 Engine and boiler seatings 3/10/19 Engines holding down bolts 3/11/19  
Completion of pumping arrangements 5/20/19 Boilers fixed 6/18/19 Engines tried under steam 6/24/19  
Completion of fitting sea connections 3/10/19 Stern tube 3/8/19 Screw shaft and propeller 3/10/19  
Main boiler safety valves adjusted 6/24/19 Thickness of adjusting washers Lock nuts  
Material of Crank shaft Steel Identification Mark on Do. 374 Material of Thrust shaft Steel Identification Mark on Do. 374  
Material of Tunnel shafts Steel Identification Marks on Do. 374 Material of Screw shafts Steel Identification Marks on Do. 374  
Material of Steam Pipes Copper Test pressure 400  
Is an installation fitted for burning oil fuel No Is the flash point of the oil to be used over 150°F.  
Have the requirements of Section 49 of the Rules been complied with  
Is this machinery duplicate of a previous case Yes If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Boilers & Machinery of this vessel have been constructed under Special Survey and in accordance with the Rules & approved plans. The materials & workmanship are both of good quality and the hydrostatic test on steam drums and tube sections of boiler proved satisfactory. The case is respectfully submitted for the notation of L.M.C. with date upon completion of the survey. The valves & boiler to be surveyed annually.

The boilers and machinery of this vessel have been installed under Special Survey and in accordance with the approved plans. The materials and workmanship are both of good quality and the Hydrostatic test on boilers and steam pipes proved very satisfactory. The safety valves were adjusted under steam to 200 lbs. Main engines and all auxiliary machinery were run for six consecutive hours at the wharf. The vessel was then taken out to sea and all machinery tested out again for four hours when a fracture developed in the bottom of the H.P. cylinder; a new cylinder was procured from the builders, installed in position and engines tested out again and found to work very satisfactorily. The case is respectfully submitted for the notation L.M.C. 7, 19. subject to the stuffing box in the stern gland being rejointed on the shaft log on the vessel's arrival at New Orleans where she is now bound. The Surveyor at that Port being notified of the case.

The amount of Entry Fee ... \$10.00 When applied for, July 16th 1919  
Special ... \$3.00 When received, Sept 9th 1919  
Donkey Boiler Fee ... \$3.00  
Travelling Expenses (if any) \$ new York

C. P. Hudson & J. B. Grant  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute New York JUL 22 1919  
Assigned + L.M.C. 7.19 subject

Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

MACHINERY CERTIFICATE  
10-9-19