

# REPORT ON STEAM TURBINE MACHINERY. No. 42277

Form 4a.

Received at London Office 2 JUL 1942

Date of writing Report MAR 3 1942 When handed in at Local Office MAR 30 1942 Port of NEW YORK (BOSTON DISTRICT)  
 No. in Survey held at QUINCY, MASS. Date, First Survey FEB 2-1942 Last Survey MAR 28 1942  
 Reg. Book. 10804 (Number of Visits 22)  
 on the STEEL SINGLE SCREW TANKER "SHELDON CLARK" Tons { Gross 10804 Net 6355  
 Built at QUINCY, MASS. By whom built BETHLEHEM STEEL CO. Yard No. 1493 When built 1942  
 Engines made at TRENTON, N.J. By whom made DE LAVAL STEAM TURBINE CO. Engine No. 230916 When made 1941  
 Boilers made at BARBERTON, OHIO By whom made BARBOCK AND WILCOX CO. Boiler No. MB1501-12 When made 1941  
 Shaft Horse Power at Full Power 6000 Owners SINCLAIR REFINING CO. Port belonging to WASHINGTON, DEL.  
 Nom. Horse Power as per Rule 1400 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES  
 Trade for which Vessel is intended CARRYING PETROLEUM IN BULK.

## STEAM TURBINE ENGINES, &c.—Description of Engines DE LAVAL IMPULSE COMPOUND

No. of Turbines Ahead 2 Direct coupled, single reduction geared } to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2  
 Astern 1 double reduction geared }  
 Direct coupled to { Alternating Current Generator — phase — periods per second — rated — Kilowatts — Volts at — revolutions per minute;  
 Direct Current Generator }  
 supplying power for driving — Propelling Motors, Type —  
 rated — Kilowatts — Volts at — revolutions per minute. Direct coupled, single or double reduction geared to — propelling shafts.

| TUBINE<br>LOADING. |                      | H.P.                |                 |                      | I.P.                |                 |                      | L.P.                |                 |                      | ASTERN.             |                 |  |
|--------------------|----------------------|---------------------|-----------------|----------------------|---------------------|-----------------|----------------------|---------------------|-----------------|----------------------|---------------------|-----------------|--|
|                    | HEIGHT OF<br>BLADES. | DIAMETER<br>AT TIP. | NO. OF<br>ROWS. | HEIGHT OF<br>BLADES. | DIAMETER<br>AT TIP. | NO. OF<br>ROWS. | HEIGHT OF<br>BLADES. | DIAMETER<br>AT TIP. | NO. OF<br>ROWS. | HEIGHT OF<br>BLADES. | DIAMETER<br>AT TIP. | NO. OF<br>ROWS. |  |
| 1ST EXPANSION      | .660                 | 26.350              | 1               |                      |                     |                 | 1.280                | 40.866              | 1               | 1.040                | 42.776              | 1               |  |
| 2ND                | .580                 | 20.906              | 1               |                      |                     |                 | 1.570                | 43.256              | 1               | 1.980                | 44.216              | 1               |  |
| 3RD                | .645                 | 21.036              | 1               |                      |                     |                 | 2.000                | 45.946              | 1               | 5.000                | 48.540              | 1               |  |
| 4TH                | .725                 | 21.196              | 1               |                      |                     |                 | 2.670                | 48.916              | 1               |                      |                     |                 |  |
| 5TH                | .800                 | 21.346              | 1               |                      |                     |                 | 3.980                | 51.580              | 1               |                      |                     |                 |  |
| 6TH                | .900                 | 21.546              | 1               |                      |                     |                 | 6.180                | 54.550              | 1               |                      |                     |                 |  |
| 7TH                | .645                 | 24.636              | 1               |                      |                     |                 | 9.930                | 59.160              | 1               |                      |                     |                 |  |
| 8TH                | .770                 | 24.886              | 1               |                      |                     |                 |                      |                     |                 |                      |                     |                 |  |
| 9TH                | .930                 | 25.206              | 1               |                      |                     |                 |                      |                     |                 |                      |                     |                 |  |
| 10TH               | 1.140                | 25.626              | 1               |                      |                     |                 |                      |                     |                 |                      |                     |                 |  |
| 11TH               | 1.385                | 26.116              | 1               |                      |                     |                 |                      |                     |                 |                      |                     |                 |  |

Shaft Horse Power at each turbine { H.P. 3000 ✓ I.P. 5265 ✓ L.P. 3390 ✓  
 Revolutions per minute, at full power, of each Turbine Shaft { 1st reduction wheel 734.3 ✓  
 main shaft 92 ✓  
 Motor Shaft diameter at journals { H.P. 5" ✓ I.P. 9.400" ✓ L.P. 8" ✓  
 Pitch Circle Diameter { 1st pinion 14.600 ✓ 1st reduction wheel 67.400 ✓  
 2nd pinion 16.073 ✓ main wheel 128.283 ✓ Width of Face { 1st reduction wheel 13 3/4" ✓  
 main wheel 33 1/4" ✓ + 2" gap  
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10 7/8" ✓ 1st reduction wheel 13 1/4" ✓  
 2nd pinion 23 1/4" ✓ main wheel 24 3/4" ✓  
 Flexible Pinion Shafts, diameter { 1st — 2nd — Pinion Shafts, diameter at bearings { External 1st 5" 2nd 11" diameter at bottom of pinion teeth { 1st 9.118 H.P. ✓  
 2nd 14.318 L.P. ✓  
 Wheel Shafts, diameter at bearings { 1st 8" ✓ diameter at wheel shroud, { 1st 11" ✓ Generator Shaft, diameter at bearings —  
 main 18" ✓ main 23" ✓ Propelling Motor Shaft, diameter at bearings —  
 Intermediate Shafts, diameter { as per rule 16.1" ✓ Thrust Shaft, diameter at collars { as per rule —  
 as fitted 16.5" ✓ as fitted — Tube Shaft, diameter { as per rule .842 ✓  
 as fitted 1.172 ✓  
 Crew Shaft, diameter { as per rule 17.71 ✓ Is the { tube } shaft fitted with a continuous liner { YES ✓  
 as fitted 19.0 ✓ 20" screw }  
 as per rule .631 ✓ Thickness between bushes { as per rule —  
 as fitted 1.030 ✓ Is the after end of the liner made watertight in the propeller boss YES ✓ If the liner is in more than one length are the junctions  
 made by fusion through the whole thickness of the liner — 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 — If two liners are fitted, is the shaft lapped or protected between the liners — Is an approved Oil Gland  
 or other appliance fitted at the after end of the tube shaft NO ✓ Length of Bearing in Stern Bush next to and supporting propeller 8'-4" ✓  
 Propeller, diameter 19'-3" Pitch 17'-0" No. of Blades FOUR State whether Moveable NO Total Developed Surface 131.8 square feet.  
 If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine YES ✓ Can the H.P. or I.P. Turbine exhaust direct to the  
 Condenser YES ✓ No. of Turbines fitted with astern wheels ONE Feed Pumps { No. and size TWO HOR. CENT 175 G.P.M. ONE V.S.D.A. 100 G.P.M. ✓  
 How driven STEAM TURBINE ✓  
 Pumps connected to the Main Bilge Line { No. and size ONE 450 G.P.M. 200" D.S. PRES. ✓  
 How driven STEAM V.D.A. 12" x 8" x 12" ✓  
 Ballast Pumps, No. and size ONE 10" x 8" V.D.A. 300 G.P.M. ✓  
 Are two independent means arranged for circulating water through the Oil Cooler YES ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 Pumps, No. and size: — In Engine and Boiler Room ONE 4" ORAINWELL AFT; TWO 3 1/2" FORD; TWO 1 1/2" TO FATHOMETER TANK; ONE 2" IN ✓  
 In Holds, &c. L.O. SUMP CATERHAM; ONE 2" IN CD AFT; PUMP ROOMS AFT ONE 4"; ONE 4" TO CD ✓  
 Main Water Circulating Pump Direct Bilge Suctions, No. and size ONE 16" ✓ Independent Power Pump Direct Suctions to the Engine Room  
 Bilges, No. and size ONE 4" ✓ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes. YES ✓  
 Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges  
 Are all Sea Connections fitted direct on the skin of the ship YES ✓ Are they fitted with Valves or Cocks VALVES ✓  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates YES ✓ Are the Overboard Discharges 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 pass through the bunkers NONE ✓ How are they protected  
 What pipes pass through the deep tanks BILGE TO FORE PEAK ✓ Have they been tested as per rule PIPE TUNNEL 2021 ✓  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times YES ✓  
 Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one  
 compartment to another YES ✓ Is the Shaft Tunnel watertight — Is it fitted with a watertight door — worked from



7 11,110 total  
BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers 5555 S.F. EACH BOILER  
Is Forced Draft fitted YES No. and Description of Boilers Two Single Drum Water Tube Working Pressure 500 LBS  
Is a Report on Main Boilers now forwarded? YES  
Is { a Donkey } Boiler fitted? NO If so, is a report now forwarded? —  
{ an Auxiliary }  
Plans. Are approved plans forwarded herewith for Shafting Oct 11-1940 Main Boilers SEPT 1940 Auxiliary Boilers — Donkey Boilers —  
(If not state date of approval)  
Superheaters SEPT 1940 General Pumping Arrangements MAR 12-1941 Oil Fuel Burning Arrangements MAR 12-1941  
Spare Gear. State the articles supplied:— As per Rule

The foregoing is a correct description,

Bethlehem Steel Company  
Shipbuilding Division  
Fore River Yard

L. W. Quinn  
General Manager

Dates of Survey while building { During progress of work in shops -- SEE PHILADELPHIA REPORT N° 8182  
During erection on board vessel --- FEB 2-10-12-13-18-19-21 MAR 5-10-12-13-16-17-19-20-21-23-24-25-26-27-28  
Total No. of visits 22  
Dates of Examination of principal parts—Casings Nov 21 Rotors Nov 21 Blading Nov 21 Gearing Nov 29  
Wheel shaft Nov 29 Thrust shaft — Intermediate shafts MAR 5 Tube shaft — Screw shaft FEB 13  
Propeller FEB 14 Stern tube FEB 12 Engine and boiler seatings MAR 5 Engine holding down bolts MAR 5  
Completion of pumping arrangements MAR 21 Boilers fixed MAR 21 Engines tried under steam MAR 23  
Main boiler safety valves adjusted MAR 25 Thickness of adjusting washers —  
Rotor shaft, Material and tensile strength OH STEEL 110500 . 111000 . 110000 LBS Identification Mark 3538 GD.  
Flexible Pinion Shaft, Material and tensile strength OH STEEL 86500 125000 LBS Identification Mark 7336 JKH 450  
Pinion shaft, Material and tensile strength OH STEEL HP 116500 LP 114000 LBS Identification Mark 4469 QWR 731  
1st Reduction Wheel Shaft, Material and tensile strength OH STEEL HP 86000 LP 85500 Identification Mark 9371 JFM 937  
Wheel shaft, Material OH STEEL Identification Mark 4452 QWR Thrust shaft, Material — Identification Mark —  
Intermediate shafts, Material OH STEEL Identification Marks 4260 QWR Tube shaft, Material — Identification Marks —  
Screw shaft, Material OH STEEL Identification Marks 9037 JFM Steam Pipes, Material OH STEEL Test pressure 900 LBS  
Date of test MAR 18-19-20 SPARE 6861 HBC Is an installation fitted for burning oil fuel YES  
Is the flash point of the oil to be used over 150° F. YES Have the requirements of the Rules for the use of oil as fuel been complied with YES  
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo OIL TANKER If so, have the requirements of the Rules been complied with —  
Is this machinery a duplicate of a previous case YES If so, state name of vessel "FLAGSHIP SINCO"

General Remarks (State quality of workmanship, opinions as to class, &c.) THE MACHINERY OF THIS VESSEL, BUILT UNDER THE SPECIAL SURVEY OF THE SOCIETY'S SURVEYORS AT PHILADELPHIA (SEE ATTACHED PHILA. REPORT N° 8182) HAS NOW BEEN FITTED ABOARD IN ACCORDANCE WITH THE RULES AND APPROVED PLANS AND AFTERWARDS TRIED UNDER FULL WORKING CONDITIONS.

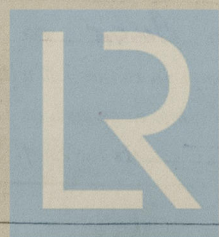
The amount of Entry Fee charged at Phila. :  
Special ... \$453.00 :  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ 50.00 :  
When applied for, April 8 1942  
When received, 19.

P. A. Wilson Jr  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK APR 8 1942

Assigned + LMC-3, 42.

NOTE-CL  
2 WTB (CH) 500 LBS.



© 2021

Lloyd's Register  
Foundation