

REPORT ON STEAM TURBINE MACHINERY. No. 9412

Received at London Office **3 APR 1950**

Writing Report 9th Feb. 1950 When handed in at Local Office 9th Feb. 1950 Port of **PHILADELPHIA, PA.**
 Survey held at **Chester, Pa.** Date, First Survey **3rd May, 1949** Last Survey **26th Jan., 1950.**
 Book on the **S.S. "SOVAC COMET"** (Number of Visits **28**) Tons **Gross 17597.94**
 at **Chester, Pa.** By whom built **Sun S.B. & D.D. Co.** Yard No. **574** When built **1949-50**
 Engines made at **Trenton, New Jersey** By whom made **DeLaval Steam Turbine Co.** Engine No. **650147** When made **1949**
 Boilers made at **Barberton, Ohio** By whom made **Babcock & Wilcox Co.** Boiler No. **MB-4342** When made **"**
 Horse Power at Full Power **12,500** Owners **Tankers Navigation Co.** Port belonging to **Panama**
 Horse Power as per Rule **3096** Is Refrigerating Machinery fitted for cargo purposes **-** Is Electric Light fitted **Yes**
 Vessel for which intended **Foreign**

STEAM TURBINE ENGINES, &c. — Description of Engines Double Reduction Gear Turbine

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~~
 coupled to { Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;
 Direct Current Generator
 applying power for driving Propelling Motors, Type
 Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE LOADING.	H. P.			XXXX			L. P.			ASTERN in L.P. Turbine		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
EXPANSION	.800"	21.750"	2				1.140"	40.346"	1	.800"	43.550"	2
"	1.230"	22.316"	1				1.540"	41.146"	1	1.200"	44.066"	1
"	.620"	21.306"	1				1.540"	41.146"	1	6.000"	51.126"	1
"	.710"	21.486"	1				2.120"	42.390"	1			
"	.760"	21.586"	1				2.880"	43.910"	1			
"	.880"	21.826"	1				4.200"	46.576"	1			
"	.990"	22.046"	1				6.450"	50.826"	1			
"	1.140"	22.346"	1				9.950"	57.576"	1			
"	1.210"	22.486"	1				12.700"	63.100"	1			
"	1.410"	22.886"	1									
"	1.720"	23.506"	1									

Horse Power at each turbine ~~XXXXXXX~~ **H.P. 6250** ✓ **Revolutions per minute, at full power, of each Turbine Shaft** ~~XXXXXXX~~ **9.760" H.P.** ✓ **1st reduction wheel 733**
LP. 6250 ✓ **69.461" H.P.** ✓ **main shaft 1112** ✓
 Shaft diameter at journals **H.P. 5"** **Pitch Circle Diameter** { 1st pinion **14.478"** **L.P. reduction wheel 64.743"** **1st reduction wheel 18-3/4"**
LP. 8" { 2nd pinion **21.75"** **main wheel 154.0"** **Face** { main wheel **35"**

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion **14-1/8"** **1st reduction wheel 14-5/8"**
 { 2nd pinion **25-1/4"** **main wheel 28-3/4"**
 Pinion Shafts, diameter at bearings External 1st { **6" H.P.** **16"** ✓ **diameter at bottom of pinion teeth** { 1st **14.048" L.P.**
 Internal 2nd { **10-31/32"** **2nd 21.109"**

Pinion Shafts, diameter at bearings { 1st **10"** ✓ **diameter at wheel shroud,** { 1st **12"** **Generator Shaft, diameter at bearings**
 main **22"** ✓ { main **27"** **Propelling Motor Shaft, diameter at bearings**
 Intermediate Shafts, diameter as per rule **19.66"** **Thrust Shaft, diameter at collars** as per rule **13-3/4"** **Tube Shaft, diameter** as per rule **NONE**
 as fitted **19-3/4"** as fitted **13-3/4"** as fitted **NONE**

Propeller Shaft, diameter as per rule **21.32"** **Is the** ~~XXXX~~ **shaft fitted with a continuous liner** { **yes** ✓ **Bronze Liners, thickness in way of bushes** as per rule **.977"**
 as fitted **22"** ✓ **as fitted 1-1/8"**
 Clearance between bushes as per rule **.733** **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**
 as fitted **27/32"** **Made in one length** **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**
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**
appliance fitted at the after end of the tube shaft **-** **Length of Bearing in Stern Bush next to and supporting propeller** **8'3"** ✓

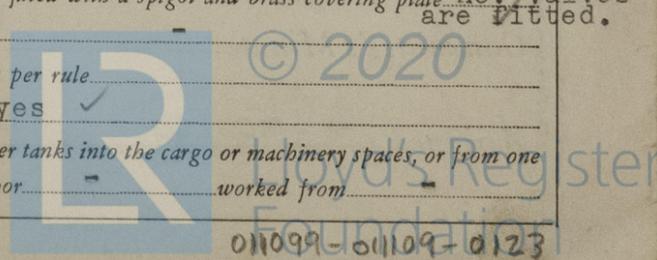
Propeller, diameter **20'** ✓ **Pitch** **16'10"** **No. of Blades** **four** **State whether Moveable** **no** **Total Developed Surface** **173** **square feet.**
Angle Screw, are arrangements made so that steam can be led direct to the L.P. Turbine **Yes** **Can the H.P. Turbine exhaust direct to the**
condenser **Yes** **No. of Turbines fitted with astern wheels** **1** **Feed Pumps** { No. and size **3 - 350 G.P.M. & 1 - 30 F.P.M. (Emergency)**
 How driven **Turbine** **Motor**

Pumps connected to the Main Bilge Line { No. and size **2 Bilge (E.R.) - 200 G.P.M. - 1 Gen. Serv. - 400 G.P.M.**
 How driven **Motor** **Motor**
1 Ford P.R. - 400 G.P.M.
1 E.R. (Gen. Serv. P.) 400 G.P.M. **Lubricating Oil Pumps, including Spare Pump, No. and size** **2 - 350 G.P.M.**
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 **6 - 3" I.P.S.**

Water Circulating Pump Direct Bilge Suctions, No. and size **1 - 16"** ✓ **Independent Power Pump Direct Suctions to the Engine Room**
 pumps, No. and size **2 - 5"** ✓ **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 **yes** ✓
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 **"** ✓ **Are the Blow Off Cocks fitted with a spigot and brass covering plate** **no** ✓ **Valves**
are fitted.
Are pipes pass through the bunkers **-** **How are they protected** **-**
Are pipes pass through the deep tanks **Fore peak ballast suction** ✓ **Have they been tested as per rule** **-**

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**



BOILERS, &c.— (Letter for record) Total Heating Surface of Boilers 18720 lbs. per sq. in. ^{29 ft.}
 Is Forced Draft fitted Yes No. and Description of Boilers 2 - Watertube Working Pressure 685
 Is a Report on Main Boilers now forwarded? Yes
 Is { a Donkey } Boiler fitted? No If so, is a report now forwarded?
 Plans— Are approved plans forwarded herewith for Shafting No Main Boilers No Auxiliary Boilers - Donkey Boilers -
 (If not state date of approval)
 Superheaters No General Pumping Arrangements No Oil Fuel Burning Arrangements No
 Spare Gear. State the articles supplied:— As req'd by Rules. ✓

Additional to Rule Requirement:—

LP & HP 1st red. pinions, HP & LP quill shafts and coupling hubs.

DELAVAL STEAM TURBINE COMPANY
 VICE PRESIDENT &
 EXECUTIVE ENGINEER

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } May 3, June 21, July 6, 12, 15, Aug. 15, 16, Sept. 7, 14, 19
 { During erection on board vessel - - - } Sept. 26, Oct. 27, Nov. 1, 14, 28, Dec. 1, 9, 13, 20, 28, 30, 1949 - Jan. 6, 10, 12, 18, 24, 25,
 Total No. of visits 29

Dates of Examination of principal parts— Casings Sept. 14, 1949 Rotors Sept. 14, 1949 Blading Sept. 14, 1949 Gearing Sep. 14, 1949
 Wheel shaft Sep. 19, 1949 Thrust shaft Sep. 19, 1949 Intermediate shafts Mar. 3., 1949 Tube shaft - Screw shaft 26 Sep. 1949
 Propeller " 26, 1949 Stern tube Nov. 14, 1949 Engine and boiler seatings Nov. 1, 1950 Engine holding down bolts Dec. 30, 1949
 Completion of pumping arrangements Jan. 16, 1950 Boilers fixed Nov. 9, 1949 Engines tried under steam Jan. 25, 1950

Main boiler safety valves adjusted Jan. 16, 1950 Thickness of adjusting washers 102000, 97,000 Locknuts
 Rotor shaft, Material and tensile strength O.H. Steel HP 104,000 L.P. 87,750 Identification Mark 5926 WCC 11
 Quill Shaft, Material and tensile strength O.H. Steel HP 93,500 LP 101,000 Identification Mark 8530 JKH 63
 Pinion shaft, Material and tensile strength O.H. Steel LP " HP 1st red. 114000 HP 2nd 116000 Identification Mark 6210 SS 12
 " " " " LP " 115500 LP " 119500 Identification Mark 6380 SS 12
 1st Reduction Wheel Shaft, Material and tensile strength O.H. Steel HP 87000 LP 87000 Identification Mark 3048-1 2995

Wheel shaft, Material O.H. Steel Identification Mark 3797 RK Thrust shaft, Material - Identification Mark -
 Intermediate shafts, Material " Identification Marks 9231 - 9283 RK Tube shaft, Material - Identification Marks -
 Spare 8743 SS Service 8750 SS
 Screw shaft, Material O.H. Steel Identification Marks Steam Pipes, Material O.H. Steel Test pressure 1650 lb.

Date of test Various from Oct. 27 to Dec. 20, 1949 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 No ✓ 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 S.S. "SOVAC BRILLIANT" - Hull

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery has been satisfactorily installed on board the vessel, tried out under full power and found satisfactory. In our opinion, the installation is entitled to receive the record of +LMC 1,50, fitted for oil fuel 1,50 F.P. above 150°F.
 This machinery has been constructed under S.S. and in accordance with the approved plans, the workmanship and materials are good.

The amount of Entry Fee \$380.00 : When applied for,
 Special £ : : 2 Feb. 1950
 Donkey Boiler Fee £ : : per F.A.G.
 Travelling Expenses (if any) \$ 70.00 : When received,
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W. R. Penhance
 Engineer Surveyor to Lloyd's Register of Shipping.

NEW YORK MAR 15 1950

Committee's Minute

Assigned + LMC 1,50



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