

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

DEC 29 1937

Received at London Office

Date of writing Report 8 Dec 1937 When handed in at Local Office 8 Dec 1937 Port of New York  
 No. in Survey held at New York Date, First Survey 11 Oct Last Survey 26 Nov 1937  
 Reg. Book. 18 (Number of Visits.....)  
 on the s/s ESSO BAYWAY Tons { Gross 7699  
 Net 4654  
 Built at Kearny N.J. By whom built Federal S.B. + D.D. Co Yard No. 144 When built 1937  
 Owners Standard Oil Co. of New Jersey Port belonging to Wilmington Del  
 Electric Light Installation fitted by Federal S.B. + D.D. Co Contract No. 144 When fitted 1937  
 Is the Vessel fitted for carrying Petroleum in bulk YES

### System of Distribution

TWO WIRE ✓

Pressure of supply for Lighting 110 volts, Heating ✓ volts, Power 220 ✓ volts.

Direct or Alternating Current, Lighting DC ✓ Power DC ✓

If alternating current system, state frequency of periods per second ✓

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off ✓

Generators, do they comply with the requirements regarding temperature rise YES ✓, are they compound wound YES ✓

are they over compounded 5 per cent. FLAT COMPOUNDED ✓, if not compound wound state distance between each generator ✓

Where more than one generator is fitted are they arranged to run in parallel YES ✓, is an adjustable regulating resistance fitted in

series with each shunt field YES ✓ Have certificates of test results for machines under 100 kw. been submitted and

approved YES ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing BY AMERICAN BUREAU

Are all terminals accessible, clearly marked, and furnished with sockets YES ✓, are they so spaced or shielded that they cannot be accidentally earthed,

short circuited, or touched YES ✓ Are the lubricating arrangements of the generators as per Rule YES ✓

Position of Generators ENG. ROOM TWEEN DECKS STARB<sup>o</sup> SIDE ✓, is the ventilation

in way of the generators satisfactory YES ✓ are they clear of all inflammable material YES ✓ if situated near unprotected

woodwork or other combustible material, state distance of same horizontally from or vertically above the generators NOT NEAR COMBUSTIBLE MATERIAL and ✓

are the generators protected from mechanical injury and damage from water, steam or oil YES ✓, are their axes of rotation fore and aft YES ✓

Earthing, are the bedplates and frames of the generating plant efficiently earthed YES ✓ are the prime movers and their respective generators

in metallic contact YES ✓ Main Switch Boards, where placed ENG. ROOM. TWEEN DECKS. STARB<sup>o</sup> SIDE ✓

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard ✓

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes YES ✓, are they protected from mechanical

injury and damage from water, steam or oil YES ✓, if situated near unprotected woodwork or other combustible material, state distance of same

horizontally from or vertically above the switchboards NOT NEAR COMBUSTIBLES and ✓, are they constructed wholly of durable, non-ignitable non-absorbent

materials YES ✓, is all insulation of high dielectric strength and of permanently high insulation resistance YES ✓

is it of an approved type YES ✓, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite or other

non-hygroscopic insulating material, and the slab similarly insulated from its framework ✓, is the non-hygroscopic insulating material of an approved

type ✓, and is the frame effectively earthed YES ✓. Are the fittings as per Rule regarding :— spacing or shielding of live parts

YES ✓, accessibility of all parts YES ✓, absence of fuses on back of board YES ✓, temperature rise of

omnibus bars YES ✓, individual fuses to voltmeter, pilot or earth lamp YES ✓, are moving parts of switches alive in the

“off” position NO ✓ are all screws and nuts securing connections effectively locked YES ✓ are any fuses fitted on the live side of

switches NO ✓ Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

CIRCUIT BREAKER FOR EACH GENERATOR, DOUBLE POLE SWITCH FOR EACH CIRCUIT. EQUALIZER SWITCHES COMBINED WITH MAIN SWITCHES

Are turbine driven generators fitted with emergency trip switch as per rule YES ✓ Are cupboards or compartments containing switchboards composed of

fire-resisting material or lined with approved material YES ✓ Instruments on main switchboard 3 ammeters 3

voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

YES ✓ Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

GROUND LAMP SOCKETS, ALSO INDICATOR VOLTMETER ✓ Switches, Circuit Breakers and Fusible Cut-outs, YES ✓ have the reversed

do these comply with the requirements of the Rules YES ✓ are the fusible cutouts of an approved type YES ✓

No See "Esso Houston" Lloyd's Register Foundation

current protection devices been tested under working conditions YES ✓ **Joint Boxes, Section and Distribution Boards**, is the

construction, protection, insulation, material, and position of these as per rule YES ✓

Cables: Single, twin, concentric, or multicore SINGLE + TWIN ✓ are the cables insulated and protected as per Tables IV, V, X or XI of the Rules YES ✓

If the cables are insulated otherwise than as per Rule, are they of an approved type YES ✓ **Fall of Pressure**, state maximum between bus bars and

any point of the installation under maximum load LESS THAN 5% ✓ **Cable Sockets**, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets YES ✓ **Paper Insulated and Varnished Cambric Insulated Cables**.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with

insulating compound YES ✓, or waterproof insulating tape YES ✓ **Cable Runs**, are the cables fixed as far as possible in accessible positions

not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical

damage YES ✓ Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit YES ✓

**Support and Protection of Cables**, state how the cables are supported and protected LEADED + ARMORED THROUGHOUT ✓

SUPPORTING CLIPS EVERY 2' OR LESS ✓

If cables are run in wood casings, are the casings and caps secured by screws ✓, are the cap screws of brass ✓, are the cables run in

separate grooves ✓. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII YES ✓

**Refrigerated Chambers**, are the cables and fittings in accordance with the special requirements YES ✓

**Joints in Cables**, state if any, and how made, insulated, and protected NONE ✓

**Watertight Glands and Deck Tubes**, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

YES ✓ **Bushes in Beams and Non-watertight Partitions**, where unarmoured cables pass through beams and non-watertight partitions, are the

holes efficiently bushed ✓ state the material of which the bushes are made ✓

**Earthing Connections**, state what earthing connections are fitted and their respective sectional areas NONE ✓

✓, are their connections made as per Rule ✓

**Alternative Lighting**, are the groups of lights in the propelling machinery space arranged as per Rule YES ✓ **Emergency Supply**, state

position and method of control of the emergency supply and how the generator is driven NONE ✓

**Navigation Lamps**, are these separately wired YES ✓, controlled by separate switch and separate fuses YES ✓, are the fuses double pole YES ✓,

are the switches and fuses grouped in a position accessible only to the officers on watch YES ✓

has each navigation lamp an automatic indicator as per Rule YES ✓ **Secondary Batteries**, are they constructed and fitted as per Rule NONE ✓

**Fittings**, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight YES ✓

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected NO ✓

NO ✓

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected NO ✓

NO ✓, how are the cables led

NO ✓

where are the controlling switches situated ✓

are all fittings suitably ventilated YES ✓, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials YES ✓

**Heating and Cooking Appliances**, are they constructed and fitted as per Rule NONE ✓, are air heaters constructed and fitted as per Rule NONE ✓

**Searchlight Lamps**, No. of 1 ✓, whether fixed or portable FIXED ✓, are their fittings as per Rule YES ✓

**Arc Lamps**, other than searchlight lamps, No. of NONE ✓, are their line parts insulated from the frame or case ✓, are their fittings as per Rule ✓

**Motors**, are their working parts readily accessible YES ✓, are the coils self-contained and readily removable for replacement YES ✓

are the brushes, brush holders, terminals and lubricating arrangements as per Rule YES ✓, are the motors placed in well-ventilated compartments in which

inflammable gases cannot accumulate and clear of all inflammable material YES ✓, are they protected from mechanical injury and damage from

water, steam or oil YES ✓ are their axes of rotation fore and aft YES ✓, if situated near unprotected woodwork or other combustible

material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type NONE NEAR COMBUSTIBLE MATERIAL ✓

✓, if not of this type, state distance of the combustible material horizontally or vertically above the motors ✓ and ✓

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing By AMERICAN BUREAU ✓ **Control Gear and Resistances**, are the generator

field and motor speed regulators, starters and controllers constructed and fitted as per Rule YES ✓ **Lightning Conductors**, where lightning conductors

are required, are these fitted as per Rule NOT REQ<sup>d</sup> **Ships carrying Oil having a Flash Point less than 150° F.** Have the special requirements of

the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and

fittings YES ✓ are all fuses of the fitted cartridge type YES ✓ are they of an approved type YES ✓

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office YES ✓

**Spare Gear**, if the vessel is for open sea service have spares been supplied as per Rule YES ✓

PARTICULARS OF GENERATING PLANT.

Table with columns: DESCRIPTION OF GENERATOR, No. of, Kilowatts, Volts, Amperes, Revs. per Min., DRIVEN BY, WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE (Fuel Used, Flash Point of Fuel).

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

Table with columns: DESCRIPTION, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (Ampères) (Circuit, Rule), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED.

MOTOR CONDUCTORS.

Table with columns: DESCRIPTION, CONDUCTORS (No. of Motors, No. per Pole, Total Nominal Area per Pole Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (Ampères) (In Circuit, Rule), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED.

S.S. " ESSO BAYWAY "

ELECTRICAL INSTALLATION

This Electrical Installation was not built under Special Survey but it has been examined and as far as can be seen the workmanship and material are good.

There are two 300 K.W. generators driven by Auxiliary Steam Turbines and one 125 K.W. generator driven by the Main Reduction Gears of the Main Turbines. At sea the 125 K.W. generator takes the load, and one of the 300 K.W. machines idles at speed but without load. When the propeller revolutions fall to 60 R.P.M., the 300 K.W. generator takes up the load, and the 125 K.W. generator is cut out through automatic switches.

The generators are ordinary 2 wire generators and provide 220 volts for the Power Circuits. The 110 volt lighting circuits are provided by means of balancer sets and the bus bar system is therefore 3 wire on the switchboard. From out of the switchboard throughout the vessel the system of Lighting is the ordinary 2 wire system.

Special precautions have been taken on this ship. No wiring and no lamps are fitted in dangerous spaces. Pump room lights are placed entirely outside bulkheads and shine through bulls eyes in bulkheads. Cargo pump motors are placed outside pump room and drive their pumps by shafts passing through stuffing boxes in the bulkheads. Accommodation and furniture are built entirely of steel panels filled with insulating material and reported fireproof.

In view of the above special precautions it is respectfully submitted that the arrangement adopted for the lighting system can be accepted by the Committee.

John S. Heck

Surveyor to Lloyd's Register of Shipping.

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

J.H. Osborne Electrical Engineers. Date Dec. 8, 1937  
Federal Shipbuilding & Dry Dock Co.

COMPASSES.

Distance between electric generators or motors and standard compass ABT 250'

Distance between electric generators or motors and steering compass 10'

The nearest cables to the compasses are as follows:—

SEARCHLIGHT  
A cable carrying 1/4 Ampères CLOSE TO feet from standard compass. CLOSE TO feet from steering compass.

NAVIGATION LIGHTS  
A cable carrying 5 Ampères ABT 10 feet from standard compass. ABT 10 feet from steering compass.

RADIO  
A cable carrying 20 Ampères " 20 feet from standard compass. " 20 feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power YES

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted YES

The maximum deviation due to electric currents was found to be \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass, and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

J.H. Osborne Builder's Signature. Date Dec. 8, 1937  
Federal Shipbuilding & Dry Dock Co.

Is this installation a duplicate of a previous case YES If so, state name of vessel ESSO BAYWAY NY RPT 37918.

General Remarks (State quality of workmanship, opinions as to class, etc. This Electrical Installation was not

built under Special Survey but it has been examined & found to comply with the Rules & the workmanship & material are good.

It has been satisfactorily tried at full loads & it is now in good & safe working condition

For further remarks, please see attached sheet.

Wid  
J.H.  
4/11/38.

Total Capacity of Generators 725 Kilowatts.

The amount of Fee ... £ INCLUSIVE FEE CHARGED ON : When applied for, 19  
Travelling Expenses (if any) £ None : When received, 19

John S. Heck  
Surveyor to Lloyd's Register of Shipping.

Committee's Minutes NEW YORK DEC 15 1937

Assigned Elec. light