

REPORT ON ELECTRIC LIGHTING INSTALLATION. No 2356

Port of **PHILADELPHIA** Date of First Survey *Jan 26/15* Date of Last Survey *Feb 10/16* No. of Visits *9*
 No. in Reg. Book *41* on the ~~Iron~~ *Steel* **S.S. GOLD SHELL** Port belonging to *Wilmington Del*
 Built at *Wilmington Del* By whom *Harlan & Hollingsworth Co.* When built *1916. 2*
 Owners *Shell Company of California* Owners' Address *San Francisco California*
 Yard No. *437* Electric Light Installation fitted by *Harlan & Hollingsworth Corp.* When fitted *1916. 2*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One 12 1/2 KW direct current generator coupled to steam engine built by Clark & Co. also one 5 KW generator
 Capacity of Dynamo *158* Amperes at *110* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *engine room on platform* Whether single or double wire system is used *double*
 Position of Main Switch Board *— A —* having switches to groups *A, A', B, C, D, E* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *all lighting circuits except navigating lights operated from main switchboard*
 If fuses are fitted on main switch board to the cables of main circuit *yes* and on each auxiliary switch board to the cables of auxiliary circuits *yes* and at each position where a cable is branched or reduced in size *yes* and to each lamp circuit *yes*
 If vessel is wired on the double wire system are fuses fitted to both flow and return wires or cables of all circuits including lamp circuits *yes*
 Are the fuses of non-oxidizable metal *yes* and constructed to fuse at an excess of *100* per cent over the normal current
 Are all fuses fitted in easily accessible positions *yes* Are the fuses of standard dimensions *yes* If wire fuses are used are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit *no wires used*
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases *yes*
 Total number of lights provided for *190* arranged in the following groups:—

A	<i>50</i> lights each of	<i>25 watt</i> candle power requiring a total current of	<i>12.3</i> Amperes
A'	<i>28</i> lights each of	" " candle power requiring a total current of	<i>6.3</i> Amperes
B	<i>12</i> lights each of	" " candle power requiring a total current of	<i>6.3</i> Amperes
C	<i>27</i> lights each of	" " candle power requiring a total current of	<i>4.0</i> Amperes
D	<i>16</i> lights each of	" " candle power requiring a total current of	<i>4.5</i> Amperes
E	<i>18</i> lights each of	" " candle power requiring a total current of	<i>2.0</i> Amperes
<i>2</i> Mast head light with <i>2</i> lamps each of		<i>32</i> candle power requiring a total current of	<i>2.0</i> Amperes
<i>2</i> Side light with <i>2</i> lamps each of		<i>32</i> candle power requiring a total current of	<i>2.0</i> Amperes
<i>16</i> Cargo lights of		<i>32</i> candle power, whether incandescent or arc lights <i>incandescent</i>	

 If arc lights, what protection is provided against fire, sparks, &c. *no arcs*

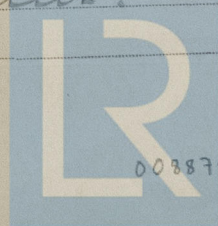
Where are the switches controlling the masthead and side lights placed *pilot-house*

DESCRIPTION OF CABLES.

Main cable carrying	<i>113</i> Amperes, comprised of	<i>19</i> wires, each	<i>#13 BS</i> S.W.G. diameter,	<i>.125</i> square inches total sectional area
Branch cables carrying	<i>12</i> Amperes, comprised of	<i>7</i> wires, each	<i>#16 S.W.G.</i> diameter,	<i>.022</i> square inches total sectional area
Branch cables carrying	<i>6.3</i> Amperes, comprised of	<i>7</i> wires, each	<i>#16 S.W.G.</i> diameter,	<i>.022</i> square inches total sectional area
Leads to lamps carrying	<i>1.5</i> Amperes, comprised of	<i>1</i> wires, each	<i>#14 S.W.G.</i> diameter,	<i>.005</i> square inches total sectional area
Cargo light cables carrying	<i>4</i> Amperes, comprised of	<i>15</i> wires, each	<i>#25 S.W.G.</i> diameter,	<i>.0045</i> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

double rubber covered, braided lead sheathed, armored in steel conduit.
 Joints in cables, how made, insulated, and protected *good mechanical joint, cold soldered with vulcanite Grimsshaw tape & coated with insulating compound.*
 Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances *yes* Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage *yes*
 Are there any joints in or branches from the cable leading from dynamo to main switch board *no*
 How are the cables led through the ship, and how protected *armored in conduit.*



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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *yes*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead encasement*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead encasement*

What special protection has been provided for the cables near boiler casings *do*

What special protection has been provided for the cables in engine room *do*

How are cables carried through beams *✓*

through bulkheads, &c. *W.T. fittings*

How are cables carried through decks *none*

Are any cables run through coal bunkers *yes* or cargo spaces *no* or spaces which may be used for carrying cargo, stores, or baggage *no*

If so, how are they protected *Lead encasement steel conduit—sheavy protected casing*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *no*

If so, how are the lamp fittings and cable terminals specially protected *✓*

Where are the main switches and fuses for these lights fitted *✓*

If in the spaces, how are they specially protected *✓*

Are any switches or fuses fitted in bunkers *no*

Cargo light cables, whether portable or permanently fixed *portable*

How fixed *-*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *✓*

How are the returns from the lamps connected to the hull *✓*

Are all the joints with the hull in accessible positions *✓*

Is the installation supplied with a voltmeter *yes*, and with an amperemeter *yes*

fixed on switchboard

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas *yes*

Are any switches, fuses, or joints of cables fitted in the pump room or companion *no*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *vapor proof lamps*

The copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than *500* megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

HARLAN & HOLLINGSWORTH CORPORATION,

By [Signature] Electrical Engineers

Date *Feb 29. 16*

COMPASSES.

Distance between dynamo or electric motors and standard compass *250 feet*

Distance between dynamo or electric motors and steering compass *230*

The nearest cables to the compasses are as follows:—

A cable carrying $\frac{1}{8}$ Amperes	<i>1 foot</i> from standard compass	<i>one foot</i> from steering compass
A cable carrying $\frac{1}{8}$ Amperes	<i>4</i> feet from standard compass	<i>3</i> feet from steering compass
A cable carrying $\frac{1}{8}$ Amperes	<i>-</i> feet from standard compass	<i>-</i> feet from steering compass

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

The maximum deviation due to electric currents, etc., was found to be *nil* degrees on *-* course in the case of the standard compass and *-* degrees on *-* course in the case of the steering compass.

HARLAN & HOLLINGSWORTH CORPORATION,

By [Signature] Builder's Signature.

Date *Feb 29. 16*

GENERAL REMARKS.

By [Signature] Vice President.

This electric lighting installation has been fitted in accordance with the Rules of the Institution of Electrical Engineers and is satisfactory.

It is submitted that this vessel is eligible for THE RECORD. Elec light.

JWD 17/3/16

Robert Haig
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

TUE MAR. 21. 1916

TUE. 4—JUL. 1916

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.