REPRODUCED AT THE NATIONAL ARCHIVES

Form 60

2-1

First
~~Second~~ LIGHTHOUSE DISTRICT

Department of Commerce and Labor
LIGHTHOUSE SERVICE

DESCRIPTION

OF

The Graves

LIGHT STATION

State: Massachusetts

October 5, 1907

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INSTRUCTIONS

This form is to be filled out for new stations as established, and for present stations which have not heretofore been described. When changes are made at existing stations affecting the description previously given, pages containing the revised data should be promptly forwarded. The use of this form should be limited to stations having resident keepers.

BUREAU OF LIGHTHOUSES,
Washington, December, 1912.

DESCRIPTION OF LIGHT STATION.

1. By whom described C. H. Robinson, date Oct. 5, 19

STATION.

2. Name of station, The Graves

3. Characteristic of light, Group flashing white 6 sec.
2 flashes, - 1st Flash 0.2 sec Eclipse 1.3 sec.
2nd flash 0.2 sec Eclipse 4.3 sec Period 6 sec

4. Geographical position of light: Latitude, 42 ° 21 ' 55"; longitude, 70 ° 52 ' 1

5. Location, on a ledge, submerged at high wat
on the southeast side of Broad Sound Chan
entrance to Boston Harbor

PREMISES.

6. Origin of title to site of station (public land, purchase, lease, military or naval reservat
Ceded to United States by Commonweal
of Massachusetts

7. Date of reservation, deed, lease, or permission to occupy, 1903

8. Area of the entire site, ~~43500 sq ft~~ (*b*) area inclosed, none; (*c*) type of fence, non

9. Distance of tower from nearest high-water mark, foundation of tower submerged 6

10. Wharf or landing on premises, Wharf.

11. Means by which the light station may be reached and distance to nearest post office or town, name, boat to Boston distance about 9 mi

12. Tower or other means used for supporting the lantern and apparatus, Granite to

13. Number of separate lights, one

14. When first built or established, 1905

ILLUMINATING APPARATUS, ETC.—Continued.

54. Number of panels in the lens apparatus, three

55. Number of flash panels, six; arc of each, in degrees, 60°

56. Number of elements in each panel of central drum of lens, 8 prisms + bulls eye

57. Number of prisms in each panel *above* central drum of lens, 18; are they fixed or flash? flash

58. Number of prisms in each panel *below* central drum of lens, 8; are they fixed or flash? flash

59. How are the flashes produced—By the whole apparatus revolving yes; by revolving belt only —; if by panels or vertical elements revolving outside of fixed lens, state the number of such panels, —

60. **If by vertical elements,** state (*a*) the number in each panel, —; and (*b*) the number of elements of fixed lens covered by the panel, —

61. **If light is occulting,** state (*a*) the characteristic, —

(*b*) Between what time limits may characteristic be varied without structural changes in mechanism? —

(*c*) Are eclipses produced by sleeve, revolving screens, or valve (if gaslight)? —

(*d*) Size of sleeve and amplitude of movement, —

(*e*) Axis of rotation of screens, horizontal or vertical, —; (*f*) relation of axis to vertical axis of illuminating apparatus, —

(*g*) Do the screens revolve as parts, or independently, of illuminating apparatus? —

(*h*) If about vertical axis, how many in circumference, —; (*i*) time required for complete revolution, —; (*j*) form, —;

(*k*) how mounted (see Questions 62–65), —;

(*l*) if actuated by clockwork, state order and maker, —;

(*m*) date made, —

If occultation is effected by valve, state (*n*) name of maker, —;

(*o*) pattern, —;

(*p*) does it operate reliably? —

62. **If revolving,** does the apparatus revolve on chariot wheels, mercury float, or balls? mercury float

63. **If a chariot,** describe it and state the number and size of each pattern of wheels in it, —

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ILLUMINATING APPARATUS, ETC.—Continued.

64. **If on mercury float,** give (*a*) inside diameter of trough, 4'-8"; (*b*) inside depth of trough, 11"; (*c*) outside diameter of float, 4 - 7 3/4; (*d*) depth of float, about 11½"; (*e*) weight of mercury required, in pounds, not known; (*f*) how often mercury is renewed? has never been renewed

65. **If on balls,** (*a*) describe the construction of the ball-raceways, whether they are flat surface or semicircular or V grooves, —; (*b*) is a cage used to separate balls? —; (*c*) state number of balls, —; (*d*) diameter of balls, —

66. Clock cord or chain, kind, gal wire; size, 3/8"; length, about 75'; how led, over sheaves; diam. and length of clock drum, 13½" dia, 7" long

67. Length and inside dimensions of drop tube or weight box, 45' 12" diam.; clock weight, 250 pounds.

68. Length of time clock will run after one winding, 1 hour 10 min

69. Does clock drive apparatus while being rewound? Yes

70. How is the machinery protected? Glass case

71. How regulated? friction governor

72. Describe the pedestal, formed in float - iron

73. Lens protector—Is there one? no; kind, —

74. Draft tube leading into ventilator ball—Of what material, diameter, and how fitted and connected with damper tube when in place, regular 18 borders draft tube fitted with damper

75. **If colored light,** (*a*) how is the color produced? —

(*b*) state where colored glass is attached, if to illuminating apparatus or to lantern, —

76. If colored glass is inside of illuminating apparatus, describe its form, —

77. Red sectors—Between what bearings, true (from seaward), —

PREMISES—Continued.

15. When last thoroughly rebuilt, repaired, or renovated, ———
16. Height of focal plane of lantern above mean high water (on sea and gulf coasts) or mean lake level on northern lakes and rivers, 98 feet
17. Background of the lighthouse, upon which it is projected, as seen from seaward, Sky
18. Color of tower, and how produced, Light grey granite - Natural color
19. Tower—Connected with keeper's dwelling, and how; or detached, keepers quarters in tower
20. Purpose of aid—Seacoast, lake coast, bay, harbor, channel, or range; for general or local navigation, seacoast & local navigation
21. Materials of which the tower is built, granite
22. Kind of stairway and steps, circular cast iron
23. Size of glass for glazing tower windows, 13½"x14½" sash 17"x30"
24. Number of windows in tower, and size of sash, nine - 2 sash, 2 lts to sash
25. Number and size of doors, 1 double entrance 3'-0"x6'-10" 4 inside 2'-5"x6'-10"
26. General remarks upon tower and site, ledge benched off tower anchored to ledge by 2" dowels through stones and by 6" iron dowels built into concrete core, tower solid up 40' with exception of two 42" cisterns

LANTERN AND LANTERN FIXTURES.

27. Order or class of lantern, 1st order
28. If polygonal, state number of sides; if cylindrical, state diameter, cylindrical
29. Vertical or helical bars, helical; thickness of bars, 1 1/16"; height glazed, 9'-9½"
30. Number of plates in height, 3; in each side, ———
31. Thickness and size of plates, ¼" regular 1st order - helical
32. Unglazed side of lantern in plates and degrees of arc, none; between what bearings (true and from seaward), ———
33. Materials of which the lantern is constructed, bronze
34. Roof, bronze

LANTERN AND LANTERN FIXTURES—Continued.

35. Ventilator ball, bronze
36. Lightning-conductor spindle, Yes - copper
37. Balustrade and outside gallery, Yes - Copper
38. Lantern doors, and how fitted, Yes - hinged
39. Floor of lantern—Of what materials, bronze and cast iron
40. Watch-room door leading into lantern, and how fitted, Trap door hinged

VENTILATORS.

41. In parapet, wall, or lower part of lantern, parapet
42. Lantern ladders for cleaning plate glass, outside, Yes
43. Curtain hooks inside of lantern—How fitted, hooks for hanging curtains

WATCH ROOM.

44. How fitted, closet and desk
45. Bell wires, speaking tubes, or telephones for calling relief keepers—Kind, Call bell wires
46. Where led, One bell in kitchen, one bell in Bedroom

ILLUMINATING APPARATUS, ETC.

47. Kind of apparatus, revolving; intensity in English candles, 380,000
48. Name of maker, Barbier & Benard & Turrin, Paris, France; year made, 1904
49. Marks and number on apparatus, None
50. Order of apparatus, first; inside diameter (inscribed circle, tangent to glass) of central drum, 12'-5"
51. **If the apparatus is a parabolic mirror,** state (*a*) diameter of opening, ———; (*b*) depth of mirror, ———; (*c*) its focal length, ———; (*d*) material of which it is made, ———
52. **If revolving,** time of revolution, 18 sec.
(*a*) duration of flash, 2 sec sec.; (*b*) duration of eclipse, first 1.3 sec 4.3 sec.
53. **If fixed,** or fixed varied by flashes, state arc of each fixed part in degrees, ———;
(*a*) duration of fixed light, ——— sec.; (*b*) eclipse, ——— sec.; (*c*) flash, ——— sec.

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LAMPS, BURNERS, ETC.

78. Description of lamp: (*a*) give order, type Bvapor 5 mm; (*b*) kind of illuminant, kerosene
(*c*) intensity in English candles, 1500

If oil, or oil vapor:

(*a*) number of wicks, or mantels, to burner, One mantle;
(*b*) diameter of outside wick, —; (*c*) diameter of mantel, 2";
(*d*) if more than one mantel, also diameter of circumscribing circle, one only

If gaslight:

(*e*) state kind, —; (*f*) number of burners, if more than one burner in group, —; (*g*) kind of burner, —;
(*h*) candlepower per burner, —; (*i*) total candlepower of group, —;
(*j*) size of burner in cubic feet of gas per hour, —;
(*k*) consumption of gas per hour, — cubic feet; (*l*) how is gas obtained?

If gas is generated at station:

(*m*) describe generator, —;
(*n*) state name of maker, —;
(*o*) date of pattern, —; (*p*) maximum capacity per hour, — cubic feet.

If compressed gas is used:

(*q*) describe container and give number in service, —; spare —;
(*r*) capacity, — cubic feet of free gas; (*s*) to what pressure charged, — lbs.; (*t*) how is supply renewed? —;
(*u*) if by substitution of full for empty container, at what intervals? —

79. Number of spare lamps at station, two vapor oil and four 1st order wide
80. Number of spare lamp burners at station, four

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CLOSETS IN TOWER.

81. How fitted and used, sit-shelves and doors, wardrobes and storage

OIL HOUSE OR ROOM.

82. Describe (*a*) where placed and how fitted, on ledge - 127' - 193°
(*b*) inside dimensions, 10'-10" X 10'-0"; (*c*) materials of which built, granite, copper
(*d*) capacity in 5-gallon cans, about 3500 gallons about 700 5 gal ca

CLOSETS AND STOREROOMS.

83. Where placed, how fitted and used, storehouse and toilet on wharf
84. Damp or dry, suited or unsuited to the purpose for which they were designed, dry and suitable

FOG SIGNAL.

85. Kind and character of apparatus, 1st class reed horn
86. How much time is required to sound the signal? About 10 to 15 min; how long may the signa sound its characteristic with the quantity of air stored under pressure? about one min
87. Characteristic:

If ~~whistle,~~ trumpet, ~~or siren~~:

Blast	Silent	Blast	Silent
3 sec.	1 sec.	3 sec.	13 sec.

~~If bell:~~

___ strokes	Silent	___ strokes	Silent
	sec.		sec.

88. What parts of the fog-signal machinery are in duplicate? engines, compress and automatic clocks
89. Location, with reference to lighthouse, to a particular danger or channel, or to the special objec for which established, mark dangerous ledges at entra to Boston Harbor
90. Distance and direction, true, from lighthouse, —
91. Water supply for it, cistern
92. How is it reached from the lighthouse? pump pipe line overboard #665799
2 H. P. Fairbanks Morse - horizontal type - 800 R. P. Z type

FOG SIGNAL—Continued.

93. Description of fog-signal building or buildings, apparatus on second floor in tower

94. **If a bell,** state (*a*) weight, —— lbs.; (*b*) metal, ——; (*c*) diameter, ——; (*d*) height, ——; (*e*) if struck by clockwork, state time it will run with one winding, ——; (*f*) maker and date, ——

95. **If a steam signal,** describe boiler: (*a*) type, ——; (*b*) length, ——; (*c*) diameter, ——; (*d*) horsepower, ——; (*e*) maker and date, ——

(*f*) Is there a heater? ——; what kind? ——; what size? ——; how much does its use reduce the time of starting the fog signal? ——

96. **If a steam engine is used:** (*a*) kind, ——; (*b*) number of revolutions per minute, ——; (*c*) diameter of cylinder, ——; (*d*) stroke of piston, ——; (*e*) horsepower, ——; (*f*) maker and date, ——

97. **If internal combustion engines are used:** (*a*) kind of engine, oil; (*b*) maker, August Mietz Corporation; (*c*) date, 1915; (*d*) nominal size, 7" x 8"; (*e*) horsepower, none; (*f*) fuel used, kerosene; (*g*) how started, hot ball; (*h*) kind of compressor, vertical; (*i*) maker and date, August Mietz Corporation 1915

State if compressor is on same bed and geared with engine, or separate and belt-driven, or both pistons on same rod, both on same shaft; if geared or belt-driven, state ratio, ——

Describe compressor machinery, (*a*) diameter of cylinder, 4"; (*b*) stroke of piston, 8"; (*c*) number of revolutions per minute, about 300; (*d*) character and size of air-inlet valves, disc 3½" diam.; (*e*) kind of unloader, none; (*f*) diameter of delivery pipe, 2"

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FOG SIGNAL—Continued.

98. (*a*) Number air receivers, one; (*b*) diameter, 3'-6"; (*c*) height, 28'-0"; (*d*) capacity cubic feet, ~~each~~, 27; (*e*) pressure ~~in each~~, 6½ lbs; (*f*) make of reducing valve, if used, ——; (*g*) remarks, air receiver formed in base of tower

99. **If ~~whistle~~, trumpet, ~~or siren~~,** pressure at which blown, 6½ lbs.

100. Diameter of whistle, ——; height, ——; distance between orifice and edge of whistle, ——; single tone, ——; chime, ——

101. **If disk or cylindrical siren,** ——; diameter of revolving part, ——; when made, ——; by whom made, ——; number, width, and length of ports, ——; revolutions per minute, ——; type of governor, ——; condition of revolving part, ——

102. **If Daboll trumpet:** Class, first; reed: length, 1'8"; breadth, 5"; thickness at base, 11/16"; thickness at tip, 5/16"

103. **If trumpet:** Length, 6'-0"; diameters, 2-0 at bell; material, copper

104. Timing device, automatic clocks

105. Height of whistle or trumpet above mean high water, 94'-0"

106. Direction, *true*, in which trumpet points, 45°

107. Pressure and recording gauge, 6½ lbs. — yes

DWELLINGS FOR KEEPERS.

108. Location with reference to lighthouse tower, none

109. Coloring, ——

110. Materials of which built, ——

111. Number of dwellings, ——; number of rooms in each, ——

112. Describe heating plant, ——

113. Number of keepers and assistants ~~in each dwelling~~, at station, Keeper and two assistants

114. Which keepers are furnished quarters? First and second assistants on shore

115. Which keepers are not furnished quarters? Keeper

116. Outhouses, storehouse and toilet on wharf; coloring, brown

117. Paths or walks on the premises, walk from tower to old house

118. Area susceptible of profitable cultivation, none; area cultivated or prepared for cultivation, ——

DWELLINGS FOR KEEPERS—Continued.

119. Character of adjacent surrounding country—Soil, sandy, clay, marsh, swamp, wood, fast ground, or shifting sands, Ledge

120. Furnish following data for stoves, kitchen sink, sink pump, and lamps in quarters:

Articles.	~~Keeper.~~ Kitchen Stove	1st ~~Assistant~~ Keeper.	2d Assistant Keeper.	3d Assistant Keeper.
Stove, maker,	Magic Hub			
Stove, size,	No. 8-20 x			
Sink, maker,	not known			
Sink, size,	22" x 36"			
Pump, maker,	None			
Pump, size,	"			
Lamps. (Give name, number, and make of all lamps in such set of quarters.)	4 hand lamps in use by all the keepers of station, from Gen. Depot 1 Table Lamp			

WATER FOR FOG SIGNAL, DRINKING, ETC.

121. How procured, by tenders for drinking etc., sea water for cooling

122. Quality, ample

123. Quantity ample or not for the station at all seasons of the year, yes

124. Liable or not to be injured by the inroads of storm tides and seas, no

125. If rain water in tanks or cisterns, what precautions have been taken to insure its purity? —
Tank filled by tender

126. Capacity of tanks or cisterns, and where placed, about 1500 gallons in tower base

127. Tanks or cisterns—Of what material made, concrete
Heater Gothic #14

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WATER FOR FOG SIGNAL, DRINKING, ETC.—Continued.

128. Is there a distilling apparatus at the station? No
Name of maker and date, —;
capacity, —; when installed, —; condition, —;
efficiency, —

129. If from a well, describe and give depth, —

130. Diameter, —; lined or not, —

131. Water obtained by pump or bucket, pump; what power is used? hand

132. Distance from keeper's dwelling, from cistern in base of tower

HEALTHFULNESS OF STATION.

133. General opinion in regard to the healthfulness of the light station and vicinity, healthful

134. Diseases—What are most prevalent at the station and in the vicinity? None

135. Do they prevail at particular seasons of the year, or not? —

136. Are there any local causes, such as swamps, marshes, etc., in the immediate vicinity of the lighthouse which are likely to be the cause of these diseases? no

137. Would draining or other artificial means employed on the lighthouse premises be likely to improve the sanitary condition of the light station? no

BOATS.

138. Furnish following data for each boat at station:

Number.	Type.	Length.	Width.	When Built.	Date Received at Station.	Is Boat Fitted with Sails?	Suited to Work Performed.
1-#163	Dory-power	16'	4'-10"	1912	1921	No	Yes
1-#129	Dory	13	4-6	1917	1918	No.	Yes

BOATS—Continued.

139. **If power boat,** kind of engine, Gasoline; horsepower, 3½;
maker of engine, shop number, and date, Palmer S-type November Date 1912
(*a*) type, size, number, and maker's name of spare coil, none
(*b*) type, size, number, and maker's name of magneto, none
(*c*) type and number of batteries, Dry - 4
(*d*) propeller wheel, diameter, 16"; pitch, 23"

140. Where are boats kept at station? on davits and in boat house

LANDING, WHARF, BOATHOUSE, AND ROAD TO THE LIGHTHOUSE.

141. Description, Wharf- boathouse on end of same

142. Distance and direction of landing from lighthouse, about 75 feet - 210°

143. Hoisting engine, what kind? none;
diameter of cylinder, ——; number of revolutions per minute, ——;
stroke, ——; kind of boiler, ——;
maker and date, ——

144. General Remarks: Three new oil tanks recently installed for bulk oil - 1 square - 2 round

Geo. E. Eaton
Superintendent

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