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cc
sent following

July 24, 1933

Commissioner of Lighthouses:

SUBJECT: Whaleback and Portsmouth Harbor Lighthouses.
REFERENCE: Bureau letter June 1, 1933.

1. Preliminary examination of the possibility of combining the operation of Whaleback Lighthouse with Portsmouth Harbor lighthouse by remote control, as outlined in first paragraph of above Bureau letter, reveal the following facts:

(a) The commercial electric current at present available at Portsmouth Harbor is, according to keeper's record in station journal, not very reliable, frequently interrupted, on at least one occasion for as much as three days.

(b) The present power wires serving the light station are owned by the War Department, they run through Fort Constitution; they are in poor condition, wires are slack and insulation has come loose and dropped off in several places. Poles are leaning in all directions. The distance from the primary power lines owned by the power company to light station is approximately 600 yards.

(c) Dwelling house for one keeper only is available at Portsmouth Harbor Lighthouse.

(d) About 2200 yards of heavy submarine cable will be required to connect Whaleback with Portsmouth Harbor Lighthouse.

(e) It appears that if Whaleback is electrified, the ~~most~~ simplest signal would be a 5 H.P. electric siren installed in duplicate. These could be placed on lantern deck of light tower.

(f) The present lens, mercury float, pedestal and clock, all in first-class condition, could be removed and a 4th order fixed lens, on hand in district, ~~installed~~, and a flashing light of same characteristic as at present installed.

(g) If Whaleback Lighthouse is electrified in such manner the present fog signal tower could be removed and thereby greatly decrease the quantity of riprap protection, if not entirely remove the necessity for such.

2. For the reasons stated in paragraph 1 (a and b), it is recommended that, if this project is undertaken, a permit or license be obtained from the War Department, to run a suitable power cable through Fort Constitution, from the primary power lines owned by the local power company to the Portsmouth Harbor Lighthouse reservation, and install a suitable gasoline engine driven electric generator at Portsmouth Harbor Lighthouse, fitted with auto-

matic cut-in switch for standby in case of failure of the commercial electric current.

3. For the reasons stated in (c) above, it is recommended that if project is undertaken, keepers at Whaleback be transferred elsewhere in the Service, and only one resident keeper be maintained at Portsmouth Harbor, with some local man to assist when visits to Whaleback is necessary, say once a week, or when other work about station is required which is considered too much for one man to do.

4. Five H.P. electric sirens, in duplicate, fitted with copper jackets instead of steel jackets, can easily be placed on the lantern gallery at Whaleback. The gallery is of ample size to hold two such units, either one placed over the other, or on same plane parallel to each other, both pointing toward Isles of Shoals. In either position they would not interfere with the light. Characteristic could be same as present; characteristic mechanism could be placed in watchroom of tower. It is believed that such installation would be much more economical and equally as efficient for this station, as either air oscillator or nautophone - a simple installation requiring the minimum of care and attendance would be by far the most desirable.

5. The present lens and revolving apparatus (see (f) above) is not suitable for operation by remote control. It is therefore recommended that this entire lens, etc. be removed for use elsewhere, and a 4th order fixed lens on a suitable pedestal be installed and fitted with a cluster of suitable lamps, in preference to being fitted with lamp changer for one larger lamp, which would require much more fittings, delay-relay, etc. A suitable motor driven characteristic mechanism giving same characteristics as the present light, can be placed in watchroom. Present characteristic seems to be satisfactory to all concerned and no change is recommended.

6. If the project is carried out as outlined above, the present fog signal tower, cast iron, lined with celerite and brick placed on north side and adjacent to stone light tower, should be demolished or removed. The fog signal engines, two Harnsby-Aldred engines, can be used elsewhere. This of course will result in less resistance to heavy seas and practically eliminate the necessity for any large amount of riprap protection for the stone tower. None will be placed until further investigated as to necessity after fog signal tower is removed.

7. A preliminary rough estimate of probable cost of project and estimated savings effected thereby as follows:

1800 ft. #0 Duplex parkway cable @ \$150 per M.	\$ 270.00
Placing parkway cable @ \$.25 per ft.	450.00
1 - 10 K.W. gas engine driven generator	750.00
6600 ft. 6 Cond. #6 submarine cable @ \$300 per M.	1980.00
Placing cable	600.00
4 characteristic control mechanisms @ \$40.	160.00
2 - 5 K.W. sirens - Sterling or equal @ \$350.00	700.00
Other fittings, switches, etc.	150.00
Labor of Inst.	450.00
	5510.00
Removing old fog signal and removing fog signal tower	2500.00
Total estimated cost of project	\$8010.00