

MJ
Loran 14th
19 June 1950
(SEE-n), CG-815

From: Commandant
To: Commander, 14th CG District
Subj: Importance of Electronic Considerations in Loran Site Selection.

1. In the overall planning for the relocation or establishment of 14th District Loran stations there are numerous factors that govern the choice of sites for transmitting stations. The sequence in which these factors are considered is important. If a site for a new station or a relocation is not first adequately investigated as to electronic aspects before considering logistics or construction aspects there can be serious complications. In general the basic considerations for proper site selection are well outlined in the Engineering Instructions USCG, Loran Ground Station Site Selection Instructions, Electronic Considerations and these requirements should be satisfied or resolved before any consideration is given to the use of the site for a Loran transmitting station.

2. There have been a series of recommendations from the 14th District during the past two years or thereabouts in which recommendations have been made for proceeding with immediate construction of Loran stations, apparently based primarily on logistics or construction factors, with only incidental or casual evaluation of the electronic engineering considerations. This latter requirement appears to have been overlooked or given a relatively unimportant role in the determination of the suitability of a particular site. The determination of the dependable signal value at the site under consideration should be the primary and basic consideration, being transcended only by the determination of the necessity of the chain itself.

3. Since the presence of a strong, clear signal with no interference from other services or atmospherics is necessary to the satisfactory operation of a station, in border line cases only an actual test at the site covering long periods of observation will give the required data. Frequently theoretical considerations will indicate comparatively high field strengths to be available at a point while due to some peculiar local condition it may be that an unusual amount of atmospheric noise is localized at that point and it may reach proportions which would render the Loran synchronizing signal ineffective. Similarly an unusual concentration of local storms may create extremely large noise backgrounds. Perhaps, too, local industry or radio installations may cause extreme amounts of electrical interference which would overshadow even very high grade Loran signals. Noise normally varies widely between day and night and with the weather and seasons. Long time observation by a carefully trained observer following a prescribed routine is the only real way to derive this data.

Commandant, to
Commander, 14th CG District

19 June 1950
(EHB-n) CG-815

4. In some instances the necessity for making observations on the spot may include an actual test installation of both transmitter and receiver at the points under consideration. A test transmitter at a proposed double pulsed location could be used in conjunction with test receiver installations at proposed single pulsed station locations. With complete control of the test, very accurate field strength measurements can be made as well as the relative values of signals, noise and interference determined.

5. It is also most important that the survey party include the most proficient Electronic Engineer assigned to the district.

6. In many cases the electronic considerations should be thoroughly explored, tested and proved prior to advancing work along other lines. It can easily occur that a considerable amount of funds and effort may be largely wasted on an unusable Loran station site if this is not done.

7. Headquarters is not unaware of the importance of many other considerations but a review of the correspondence in connection with several past district proposals to relocate Iwo Jima, Cocos, Wake, etc., indicate that they have very frequently been accompanied by urgent requests for authority to expend funds and to proceed with construction commitments before any adequate electronic engineering information had been obtained. A continuation of this practise will lead to serious difficulties and complications and to much expensive special engineering after construction or other commitments have been made. The only sub-standard Loran rate in operation by the Coast Guard today is the one between Iwo Jima and Oshima and there now appears to be considerable probability that the Wake installation will produce another such rate and that still another would follow if Cocos is hastily relocated as has been proposed at various times.

8. In summary, HQ henceforth does not propose to approve any further construction work, to authorize land procurement or to authorize other commitments for Loran sites until such time as adequate electronic engineering information is furnished to HQ for review. HQ has recently received a very well done electronic engineering site survey for Wake Island but the information was received long after heavy commitments had been made for land procurement and construction, based wholly on district recommendations which do not appear to have been based on adequate advance electronic engineering data. The data finally obtained is such that had it been available in advance of construction HQ would not have authorized construction, due to the definitely sub-standard Loran reception at Wake which will now probably provide sub-standard operation. You are requested to consider this matter carefully before submitting any further recommendations for relocation of Loran stations. The contents of this letter shall also be

Commandant, to
Commander, 14th CG District

19 June 1950
(SEE-n) CG-815

brought to the attention of the Guam Section with particular reference
to the Japanese, Marianne and Philippine Loren chain.

JUN 28 1950

A. C. RICHMOND
Rear Admiral, U. S. Coast Guard
Acting Commandant

CC: ECV
OAN
OSU
C
E