ORDER

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6700.19

11/4/76

SUBJ: POWERLINE CONSTRUCTION OR ALTERATION IN THE VICINITY OF VOR FACILITIES

1. PURPOSE. This order provides guidance to FAA regions for establishing and maintaining communication with electric power companies, and for coordinating activities with these utilities related to planning of powerline construction in the vicinity of very high frequency omnirange (VOR) facilities.

2. DISTRIBUTION. This order is distributed to branch level in the Airway Facilities, Systems Research and Development, and Air Traffic Services in Washington headquarters and to branch level in the regional Airway Facilities and Air Traffic divisions.

3. BACKGROUND. The Airway Facilities Service is responsible for the operational integrity, without interference from external sources, of VOR facilities. In so doing, the Service continuously seeks ways to maintain optimum VOR performance. There have been instances where a VOR facility has become unusable because of reflection or reradiation from newly erected or modified powerlines and metallic towers. It is possible to avoid this situation by suggesting changes of conductor configuration, spacing of conductors, change of pole heights, etc., to the power company before construction. The Systems Research and Development Service has developed a computer program that will provide information on interference from horizontal long wires. This information will be provided by the Airway Facilities Service, Navaids/Communications Engineering Division, AAF-400, to any region requesting assistance. In addition, Handbook 6700.11, VOR/VORTAC Siting Criteria, is being revised under a long-range program.

4. ACTION. The Airway Facilities division of each region is assigned the responsibility to establish communication with all electric power companies within its boundaries. Initial correspondence should discuss VOR interference resulting from reflections and reradiation and should stress the mutual benefit that will be gained by collaborating on proposed powerline installations. A sample letter is contained in appendix 1. Initial correspondence shall include a map and listing of the locations of existing and planned VOR/VORTAC (VOR/VOR tactical

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air navigation) facilities. Maps and location lists shall be updated and forwarded to the electric utilities on a periodic basis. A file shall be maintained at regional headquarters of all correspondence on this matter. Note that this action does not satisfy the 14 CFR, Part 77 notice requirements. Assistance can be obtained by calling AAF-410, FTS 8-426-8534.

WARREN C. SHARP
Director, Airway Facilities Service

APPENDIX 1. SAMPLE LETTER TO ELECTRIC POWER COMPANY

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591

Potomac Electric Power Company
1900 Pennsylvania Avenue, NW
Washington, DC 20591

Gentlemen:

The Federal Aviation Administration operates and maintains an air navigation radio network essential to the safety of civil and military aircraft. Continuous operation of these vital navigational aids, without interference or interruptions, is of utmost importance to civil aviation and to the national defense.

These very high frequency omnirange (VOR) facilities, operating in the 108-118 megahertz frequency band, may become unusable because of reflections or reradiation from horizontal conductors within two miles of the navigation facility. When this occurs, immediate action is required to either relocate the facility or reroute the powerlines at considerable expenditure of time and money both for the United States Government and the utility company involved. Often, relocation of the facility is not feasible, since siting is critical both from an engineering and air traffic control standpoint.

Experience indicates that interference from a powerline is governed to an excessive degree by the following factors:

1. The distance from the navigational aid to the powerline.

2. The number, size and spacing (configuration) of the powerline conductors and shield wires.

3. The elevation of the powerline conductors and metallic towers.

4. The angle of the powerline and metallic portions of tower with respect to a radial from the navigational aid. In general, voltage on the lines is not a factor.

We would appreciate your advising us, as far in advance as possible, of powerline construction or alterations within two miles of a VOR facility. This will enable us to perform an analysis of the effects that your construction/alteration will have on our facilities and

to work with you to avoid an interference problem before it occurs. In many cases, powerline interference can be reduced to a tolerable level by changing conductor configuration, spacing and conductors, changing of pole heights, etc. A map and list indicating the location of present and programed facilities in this region are enclosed.

We will be pleased to work with you on any problem and urgently solicit your cooperation in this matter of mutual concern.

Sincerely,

(Name)
Chief, Airway Facilities Division

Enclosures