DEPARTMENT OF STATE

AIRGRAM

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HANDLING INDICATION

TO : Amembassy ROME
INFO: ADC, CINCEUR, CINCUSAFE, CINCEUR CONTACT OFFICE, ROME

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FROM : Department of State

DATE:

SUBJECT : Project CLEAR SKY

REF :

STATE/DEFENSE MESSAGE

1. In connection with the conclusion of the Limited Test Ban Treaty of 1963, the US Government's Executive Branch made a commitment to the Legislative Branch that it would augment United States monitoring capabilities to assure that possible non-compliance by other states with the undertakings of this Treaty would not go undetected. The United States Air Force was, accordingly, assigned responsibility for the operation and maintenance of an Atomic Energy Detection System (AEDS) designed to monitor foreign nuclear activities, including nuclear tests and explosions. This AEDS, nick-named "Project CLEAR SKY", is operated by the Air Force Technical Applications Center (AFTAC). AEDS is now deployed worldwide to detect subsurface, atmospheric, and ionospheric nuclear events. Recent, technical developments indicate that the atmospheric network's coverage and reliability can be increased by making use of the 440L system, and that the collocation of the ionospheric detection techniques will improve their effectiveness and reduce their cost.

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FORM DS-323

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In Out

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A. Atmospheric Detection Facility. Evidence collected from the Chinese atmospheric nuclear tests shows that high frequency signals transmitted by the 440L program transmitters are greatly influenced by atmospheric nuclear events occurring along or near the signals' propagation paths. By monitoring selected 440L transmissions whose propagation paths pass near Chinese and Soviet nuclear test sites, the AEDS will be able to increase its detection capability. With the operation of some additional recording equipment, the data from the USAF Aerospace Defense Command (ADC) 440L site at Aviano Air Base will provide an important supplement to the AEDS coverage of part of the Eurasian landmass. To take advantage of this opportunity USAF proposes to install the necessary additional equipment and assign additional personnel to the ADC 440L site at Aviano Air Base by April 1, 1968.

Five equipment trailers are required to house the technical equipment. Three trailers in which equipment can be installed are presently at Aviano Air Base. The additional trailers and equipment will be shipped in March. When the permanent 440L building is completed, the AEDS recording equipment can be moved in to the building which will be capable of accommodating this equipment.

One USAF officer and 18 airmen will be assigned to operate and support the AEDS equipment. These people will be assigned to the 1157th Technical Operations Squadron, Wiesbaden, Germany, which is responsible for the operation of AEDS equipment in the European area for AFTAC. ADC has accounted for these personnel in its plans for billeting space.

440L System can properly be regarded as another part of "communications" facility which GOI agrees is authorized by BIA List of Installations (see Rome's A-1485, April 28, 1964 and Rome's A-167, August 18, 1966). Embassy or, if Embassy prefers, CINCEUR Contact Officer should inform appropriate Italian officials that system can be used for detection of atmospheric nuclear events and that some of the recording equipment and 19 persons are to be used primarily for that purpose. The additional recording equipment will look like

the other 440L equipment, and only someone familiar with the details of the 440L system could tell any technical difference in the equipment.

3. Ionospheric Detection Facility. Until recently there have been three separate worldwide networks of AEDS techniques for detecting ionospheric nuclear explosions. The collocation of these techniques to form one network will allow several sensors to complement each other. The greater sensitivity and reliability of the collocated detection equipment would make the new ionospheric detection network more effective than the three separate ionospheric detection techniques. In addition, the collocated network would have fewer stations than those required by the three separate networks with concomitant savings in money and manpower. Thus, despite the increase of US personnel in Italy the installation proposed below will result in an over-all decrease in US personnel overseas. The specific detection techniques required for this ionospheric detection facility are described below. All equipment is passive and no frequency allocations from GOI are required.

Very Low Frequency Phase Anomaly. This technique detects ionospheric nuclear detonations by monitoring phase changes occurring over very low frequency radio propagation paths as a result of the detonations. The facility would require a plot of land approximately 30 feet by 30 feet. On this plot of land would be erected nine 6-foot loop antennas and four 20-foot whip antennas. This technique requires eight to ten racks of electronic recording equipment.

Magnetic. This technique detects ionospheric nuclear detonations by recording changes occurring in the magnetic field and telluric currents of the earth as a result of such detonations. The components consist of four 3-foot by 4-foot lead plates and three magnetic sensors. The plates are buried at each end of two 500-meter data lines. One of the data lines is oriented on a magnetic north-south axis and the other on an east-west axis. The magnetic facility requires four 10-foot by 10-foot plots of land for the lead plates and one 100-foot by 100-foot plot of land for the sensors. This technique would require five racks of electronic recording equipment.

Atmospheric Fluorescence. This technique detects certain light bands resulting from fluorescence in the upper atmosphere caused by nuclear detonations in the upper atmosphere. The external equipment consists of optical sensing units. The biggest unit would be the approximate size of an office desk. The sensing units would require a space approximately 15 feet by 25 feet mounted on a 25-foot tower or on a roof. This technique would require five to eight racks of electronic recording equipment.

The ionospheric facility would be manned by two officers and 30 airmen and is programmed to be operational by July, 1970.

USAF proposes to survey Aviano Air Base and an area within a 20-mile radius of the base for the location of the ionospheric detection facility. All of the electronic recording equipment and the VLF Phase Anomaly antennas could be located on base. Whether it is possible to locate the atmospheric fluorescence sensing units on base would be determined by the survey. The land required for the magnetic technique cannot be on base because of noise and technical disturbances normally associated with an air base. USAF hopes that suitable off-base site can be found as near the base as possible to take maximum advantage of base support facilities.

Survey team would consist of three or four USAF personnel. Length of survey would be three to four weeks. Survey equipment consists of passive electronic gear in suitcases and its total weight will be no more than 400 pounds. Survey team would be prepared arrive Italy within about two weeks after permission is received. Survey team could first come to Rome to brief Embassy and CINCEUR Contact Officer.

Since survey must be off base, we assume approval by "competent Italian authorities" (see Art 21 of BIA) will be required, but any Embassy suggestions for expediting survey would be appreciated. You should consider whether it would be preferable for Embassy to approach Foreign Office or for

CINCEUR Contact Officer to approach Italian Military authorities for survey approval. In either case it should be emphasized to Italians that approval of survey would not commit GOI to authorize installation of facilities.

If suitable sites are located, we would envision covering ionospheric detection facility under BIA either by amending "List of Installations" at Governmental level or by military-level amendment of agreement between appropriate US/Italian military authorities covering Aviano. Your views and recommendations on type of agreement are requested.

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