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DRAFT

TO: [redacted]

SUBJ: Communications to Support SAINT Satellite System

1. This memorandum is to clarify the point-to-point communications support for the SAINT Satellite System.

2. The need for point-to-point communications for SAINT has been divided into communications for research and development, and communications for the period when the system will be partially and wholly operational.

3. To meet the criteria for the various circuits for these phases, the Air Force approached the common carriers for proposals for channels involved. The [redacted] proposal for a complete system with by-pass routing

[redacted]

method. The Western Union proposal for a complete system with by-pass routing was [redacted] with no termination liability and no installation costs for wideband channels. More details are attached. Based upon an October 1961 operational date (which is no longer valid), we estimated the lease costs for the purely developmental communications in the order of [redacted] for a 15 month period. The Air Force issued a Communications Service Authorization to Western Union to provide the necessary services. The Air Force is actually buying whatever part of system that Western Union is building. The system is a commercial system and the Air Force will buy service from the common carrier at the available channels of communications exist. The Air Force is not subsidizing the system in any way.

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4. The existing agreement between the Air Force and Western Union is a Communications Service Authorization. This is a call for service on the [illegible] Government contracts with the common communications carriers, [illegible] Western Union, the AT&T, and associated companies. It can be used only for calls for services which have been duly approved and tariffed by the FCC. Within the Air Force, issuance of CSA's is limited to duly appointed commercial communications contracting officers and their authorized representatives. Western Union has been issued a CSA by the Air Force Ballistic Missile Division, calling for service as outlined in [illegible] #1. This in no way commits the Air Force to other than recurring monthly charges for service as such service is called up.

5. The need for real time communications links for relaying information, gathered from SAINT satellites, arises from the fact that the readout station has limited time to receive information from a vehicle. This information is sent to the Control Center and explanations of the take are made so the satellite can be programmed to work more effectively. For example, a satellite can read out visual information on about 400 miles of a 2000 mile strip of territory. To be most effective, the satellites will have to be programmed to compensate for territory covered by clouds, focusing of cameras, aiming of cameras, turning beacons on and off, and the like. Only electrical transmission of data received and of command and control information derived from these data will give us efficient use of the SAINT System. The use of electrical transmission during the research and development stage is necessary for developing the techniques

which will have to be used when the system becomes operational. We can also anticipate that there will be information of value to the Intelligence Community during this phase. Speedy processing of such information will be of value in validating or up-dating present Intelligence Estimates.

FOR THE CHIEF OF STAFF:

TOTAL POINT COMMUNICATIONS SERVICE FOR SAMOS SATELLITE SYSTEM

1. 6 mcs bandwidth analog signal from Vandenberg to Sunnyvale
   6 mcs bandwidth from Sunnyvale to Offutt
   6 mcs from New Boston to Offutt
   6 mcs from Ottumwa to Offutt

2. 2 channels 10 kcs digital rate each, one to be time coincident with the analog signal, both to serve the same facilities and in the same time period as the 6 mcs channels.

3. An interim 100 kcs bandwidth channel, including a 51.4 sync channel in lieu of the 6 mcs [illegible] signal. This will be furnished by alternate use of the 6 mcs channel during R&D.

4. 60 words per minute duplex secure teletype; security and teletype equipment leased:

   Vandenberg to Sunny vale
   New Boston to Offutt
   Ottumwa to Offutt
   Denver to Sunnyvale (temporary)
   New Boston to Sunnyvale (temporary circuit until TOCC becomes operational)
   Ottumwa to Sunnyvale (same as New Boston to Sunnyvale)
   Offutt to Sunnyvale - 1 duplex, 1 half duplex

5. 100 words per minute teletype:

   2 half duplex Vandenberg to Sunnyvale
   1 half duplex Denver to Sunnyvale (temporary)
   3 half duplex New Boston to Sunnyvale (temporary)
   3 half duplex Sunnyvale to Offutt
   3 half duplex Ottumwa to Offutt
   3 half duplex New Boston to Offutt

6. Voice Channels:

   Denver to Sunnyvale (temporary)
   Sunnyvale to Offutt
   New Boston to Sunnyvale (temporary)
   Ottumwa to Offutt
   New Boston to Offutt

7. These circuits to be phased in as facilities become operational. The Vandenberg to Sunnyvale channels are originally for R&D purposes.

PROGRAM STATUS

Twenty-five satellites are scheduled to be launched for the purpose of R&D from September 1960 through December 1962. The first 3 will have components of both the early phase [redacted] subsystems. A+ Of the completion of this series, 8 launches of satellites with the S-2 or 36" focal length camera are planned commencing in April 1961 and 7 launches of the [redacted] subsystems commencing in June 1961 are planned. The first of 7 launches of the S-3, high resolution reconnaissance camera is scheduled for launch in August 1961. The payload for this S-3 series will be recovered after re-entry into the earth's atmosphere. All of these launches will be conducted from the Pacific Missile Range and will be fired into circular polar orbits to an altitude of 300 nautical miles. Two tracking and acquisition stations are planned for this system during the R&D phase. One of these will be located at Vandenberg Air Force Base, and the other at New Boston, New Hampshire. Another two stations are required for the operation of the program; one will be constructed at Obtumwa, Iowa, and the other at Ft. Stevens, Oregon. These stations will perform the function of tracking the satellite and the reading out of the data when the satellite is interrogated. The data collected will be released from the TAA stations to a Space Operations Center to be located at SAC Hq, Omaha, Nebraska. At the Space Operations Center military personnel will perform the function of preparing programmed commands which will be transmitted to the satellite via the TAA stations. Additionally, a military organization will process the reconnaissance information obtained from the satellites into usable intelligence

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Data for Appropriate Dissemination.

The program presented was approved by the Air Force Ballistic Missile Committee in a meeting on 10 February 1960. The objectives of the program are that the system be capable of flying some satellites for intelligence exploitation during a development/operational phase starting in August 1962. Turnover of the system to SAC is now scheduled for July 1963. To accomplish this the following funds are required:

[redacted]

PROBLEMS

To get an approved development plan. The above program was presented to various panels of the Weapons Board on 1 February 1960 and to the Weapons Board on 3 February 1960 and to the Ballistic Missile Committee on 10 February 1960. Approval for this program was provided with the additional funds required of both the ceiling amounts available to come from either internal Air Force reprogramming or DOD emergency fund resources.

AIR STAFF ACTION - None required at this time.

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