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CONTROL SYSTEM~~ISI~~ NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.GAMBIT/HEXAGON
DORIAN/EARPOP

OFFICE OF THE DIRECTOR

MEMORANDUM FOR THE ASST SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT)

SUBJECT: NRO Command and Control Communications System

The NRO communications system, established in 1963, has been expanded to its present state on a circuit-by-circuit basis in response to the increasing requirements of individual NRO satellite programs over the past four years. The present system, augmented in this fashion, provided adequate support to NRO operations through calendar 1966.

Last fall, we reviewed our capability to determine the adequacy of the system to support NRO operations through the 1967-1972 time period. We concluded from this review that our present system was marginal in its capability to support our operations through this calendar year, and inadequate to support the increased volume and sophistication of NRO satellite operations traffic in the time period 1968 and beyond. For example, our digital communications terminals are currently averaging 550 hours per month in the processing of operational payload data and our teletype relay center is currently handling an average of 18,000 teletype operations per month (almost exclusively mission generated). Using our current mission experience as a communications workload model, we can predict for the 1970 time period an average of 1,650 hours of payload data processing and 46,000 teletype operations per month, generated by anticipated GAMBIT, HEXAGON and EARPOP missions alone.

Several alternative approaches to enhancing this capability were considered. We investigated the possible use of other existing systems. We found that none of these possessed the data handling capability of even

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our present system and that none were programmed to attain the required transmission speeds during the 1967-1972 time period. We examined the relative costs and performance capabilities of an automated relay system and what would amount to a major expansion of our present manual system. The comparison showed an automated system to be most effective in satisfying our anticipated requirements.

For an automated system, we have examined the equipment, and in several cases, installations of the various manufacturers who offer ADPE equipment purported to be capable of meeting our system specifications. For example, we have examined:

- a CDC facility at General Motors;
- the Western Union/RCA/IBM complex for AUTODIN;
- the GE Data Net 30 at Poughkeepsie, New York;
- the Defense Intelligence Special Security Communications System (DISSCS) planned for DIA/NSA.

We found none of these systems to be easily adaptable to our particular situation.

We have reviewed the performance and procedures of yet another system -- the fully operational and reliable NASA Communications System (NASCOM) at the Goddard Spaceflight Center. This system -- a UNIVAC 494 -- presently supports satellite missions similar to that anticipated by the NRO in the early 1970 time period. This type system is ideally suited to handle our current and anticipated needs and can be easily adapted to our particular situation.

We have taken preliminary steps to design, procure and install an Automatic Electronic Switching Center at Andrews Air Force Base, and are working toward an operational capability for March 1968. We have centered our design effort about a UNIVAC 494-type system, and in anticipation of requirements, have commenced training of our communications operators in UNIVAC system procedures.

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In addition to the technical considerations involved, we have the problem of program security. A formal solicitation of proposals for such equipment would result in the public disclosure of the sensitive details of our NRO communications network.

In order to complete this installation in a timely manner and to avoid disclosure of the sensitive details of our system, we need an exception to the provisions of DOD Directive 4105.55, which requires the formal solicitation of proposals from all manufacturers who offer ADPE equipment capable of meeting system specifications.

As an indication of precedent in this area, such an exception was previously approved -- in late 1964 -- to enable our proceeding sole source on the procurement of ADPE for the high speed data communications system between our intercept points and the SAC Global Weather Center.

I would appreciate your signature on the attached memorandum.

Alexander H. Flax

Attachment

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