

~~TOP SECRET~~

NATIONAL SECURITY AGENCY

FORT GEORGE G. MEADE, MARYLAND 20755

EARPOP

BYE-60253-66

6 May 1966

MEMORANDUM FOR DR. FLAX, NRO

SUBJECT: STRAWMAN Briefing

REFERENCE: Memorandum from Dr. Flax dated 7 April 1966,
Subject: Near-Term Satellite SIGINT Program

1. The general description of Program 770 presented by General Stewart on 8 April 1966 provided an excellent basis for further discussions and formulating future planning of SIGINT satellite activities. For purposes of comment, we view the program proposals in three basic parts. First, the STRAWMAN collection system as a successor to MULTIGROUP for the primary EOB role; second, the expansion of the processing center facilities at [] and finally, the advanced development program. Attached as inclosure 1 are more complete and specific comments on the STRAWMAN concept and related collection and processing proposals.

2. The objectives posed for the STRAWMAN collection system are appropriate and the general technical approach to satisfying these objectives appears to be an excellent mixture of those techniques which are tested and available. An extensive detailed technical analysis of the collection packages was, of course, not possible because of the general nature of the material presented but, within this context, the program appears to be well founded. For the purpose of a more detailed evaluation, my staff will work closely with your representatives to monitor and participate in the system design effort.

3. With regard to the expanded [] processing facility, we feel it is premature to make such a commitment at this time.

EARPOP

Copy 1 of 4 Copies
Page 1 of 7 Pages

Stewart, G. J.

~~TOP SECRET~~

HANDLE VIA
EYESMAN-TALENT

CONTROL SYSTEMS JOINTLY

Stewart

EARPOP

EYE-60253-66

Though such a facility might become necessary at a later date, several factors prompt us to advise against this expenditure now. The foremost factor is a recent commitment by NSA to significantly expand the processing facilities at NSA to accommodate these programs. In view of the combined NSA and SAC resources, it is not clear, at this time, that the additional expansion at [] is needed. In addition, the functions proposed for the new processing center imply rather fundamental changes to present processing roles and responsibilities. We are now completing a review of our over-all SIGINT satellite processing posture and will treat this proposal in that review. A copy of this total processing plan, and my understanding of the collection/processing functions and relationships, will be forwarded under separate cover within the next month. We will, of course, want your comments on any proposed modifications to existing processing roles and procedures to assure that an effective interface between collection and processing is maintained.

50X1

4. The advance development objectives and specific equipment improvements recommended appear to cover the appropriate areas. From this all-inclusive list, however, we feel further study by our staffs will be necessary to provide the basis for identifying those priority items which should be addressed first. As one particular comment, we would favor emphasizing the acceleration of improved satellite-to-ground communications over increasing the processing accomplished in the satellite. To better define these trade-offs and the priority of development tasks, NSA specialists will continue to work closely with members of your staff.

5. I would like to extend my personal appreciation for the excellent cooperation extended by you and your staff on these and other related matters. In view of the complicated interface

EARPOP

Copy 1 of 4 Copies
Page 2 of 7 Pages

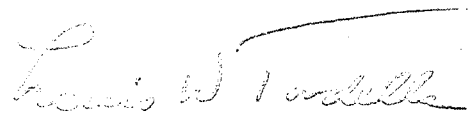
~~TOP SECRET~~
HANDLE WITH
EXTREME CARE
CONTROL SYSTEMS SECURITY

~~TOP SECRET~~
~~TOP SECRET~~

EARPOP

EYE-60253-66

required between our individual areas of responsibility, I am convinced that close working relationships, within a solid framework of responsibilities, are the only effective solution to our mutual problems.



LOUIS W. TORDELLA
Acting Director

Incl:
a/s

EARPOP

~~TOP SECRET~~
~~TOP SECRET~~

Copy 1 of 4 Copies
Page 3 of 7 Pages

HANDLE WITH
EXTREME CARE
CONTROL SYSTEMS JOINTLY

~~TOP SECRET~~BARPOP
BYE-60253-66Specific Comments on STRAWMAN Concept as Presented to NSA
on 8 April 1966

The briefing defined very clearly the need for improvement of satellite collection techniques in satisfaction of USIB expressed Electronic Order of Battle (EOB) requirements and the general direction of proposed program improvements you intend to implement under the STRAWMAN concept. It is, however, understood that the USIB EOB requirements are in the process of further refinement and hence should provide a more definitive basis for the final formulation of the STRAWMAN program.

Expansion of the successful SETTER concept to 1.8-3.3 KMC in REAPER does appear to be the best available means of meeting the EOB requirements for this portion of the spectrum. For the higher frequencies, the use of P-11 payloads is a reasonable option in light of past results. Though not operationally proven, the modifications to the MULTICROSS approach recommended for THRESHER are appropriate considering the limited alternatives in these lower frequency ranges.

50X1

The briefing did not include the contribution that the POPPY system should make in satisfaction of EOB requirements. The POPPY system, primarily thought of as a general search mission to date, can provide, through the NSA program, accurate locations in a timely manner. The POPPY system appears most efficient for EOB purposes in the lower portion of the RF spectrum partially covered by the proposed THRESHER system, and below. Improvements are being made in both the P-11 and POPPY programs that should compliment these planned improvements in the STRAWMAN proposal.

The proposed COMINT collection capabilities are significantly improved by their inclusion on a long life capable platform and utilization of a steerable antenna.

BARPOP

~~TOP SECRET~~Copy 1 of 4 Copies
Page 4 of 7 Pages.

INCLOSURE 1

HANDLE VIA
BYEMAN-TELETYPE

EARPOP
BYE-60253-66

Representatives from NSA will be working closely with the NRO in the planning for these new COMINT systems.

Evaluation of the proposed program must also consider, as touched on in the briefing, the General Search and Technical Intelligence requirements. NSA is currently evaluating results from presently operating systems in terms of their General Search and Technical Intelligence capabilities, as well as assessing the future planned capabilities in MULTIGROUP, the STRAWMAN modification and the planned P-11 and POPPY collection systems. The results of this evaluation will be provided to your office as they become available.

With regard to Technical Intelligence requirements, the continued use of pre-detection recording in the REAPER modification to MULTIGROUP and the addition of the pre-detection recorder in the REAPER should provide an excellent capability for collection of data for technical analysis. NSA, as part of its overall processing plan, is installing an extensive system to perform technical analysis of the pre-detection data collected by MULTIGROUP. In accordance with the stated STRAWMAN criteria to make "maximum use of developed items of MULTIGROUP/SETER system", the need to consider further the compatibility and usability of NSA processing and analysis systems must be emphasized. Such things as data content, data format, method of recording, etc., are items of mutual concern to both the collectors and processors. Continued and enhanced technical exchange between representatives of the NSA and the NRO will insure the best possible overall collection/processing system. In early meeting between technical representatives of the NSA and the NRO is recommended to establish data formats, etc., to insure that the new conversion equipment which has been designed by NSA and which will go into construction in July, 1966 includes all the necessary provisions for processing pre-detection data from the new system.

EARPOP

Copy 1 of 4 Copies
Page 5 of 7 pages.

HANDLED VIA
SYSTEMS/PLANT
COMMINT SYSTEMS JOINTLY

EARPOP
BYE-60253-66

As a part of the total processing resources, a program was undertaken early this year to provide a major expansion in NSA processing facilities to cope with the anticipated increased volume of SIGINT satellite collected data. This facilities expansion, funded at the 4.6 million dollar level this year, includes a major increase in machine processing capability by January 1967 through procurement of a CDC 6400 computer, and the necessary conversions of existing IBM 7094 computer programs; modifications by June 1966 of existing analog to digital conversion equipment (AUDICO and [redacted]) to handle the new collection systems you have defined; construction, beginning in July 1966 and to be completed by June 1967, of two newly designed conversion equipments which will further enhance conversion capabilities through inherent equipment flexibility; and the current installation of five new technical signals analysis positions, two of which are specially configured for analysis of pre-detection data from the MULTIGROUP payload.

SAC has been tasked to perform certain volume processing and reporting functions under NSA guidance. In addition the XRO West Coast facilities are performing certain processing functions in support of NSA for the digital portion of the present 770A program and are also providing technical support in such things as the generation of spin axis data in the 770B program. NSA future processing plans include the continued utilization of these and other U.S. Government resources, as needed, in satisfaction of NSA national processing responsibilities.

It does not appear, at this time, that any other U.S. Government resources will be utilized for volume processing in that the present programmed expansion by NSA is more than adequate for the near future. It is therefore recommended that the NRO not expand its West Coast facility or undertake development of a new facility to convert

EARPOP

Copy / of 11 Copies
Page 6 of 7 Pages.

HANDLE VIA
EYESMAN-ONLY

CONTROL SYSTEMS CONTROL

BARPOP
BYE-60253-66

and pre-process/process analog data as an assistance to NSA.

It is further suggested that the proposed expansion of conversion and machine processing facilities for evaluation, testing, etc., of collection systems may not be necessary beyond those required for digital collection systems. It would appear that adequate evaluation of the "on-orbit" performance of analog systems can be performed visually, or with very simple and much cheaper conversion and processing equipment than required for volume processing. Collection systems evaluations based on the analysis and processing of analog and digital data will continue to be provided by NSA.

BARPOP

~~TOP SECRET~~
~~SECRET~~Copy 1 of 4 Copies
Page 7 of 7 Pages.HANDLE VIA
SPECIAL DELIVERY
CONTROL SYSTEMS JOINTLY