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DEPARTMENT OF THE AIR FORCE  
HQ AIR FORCE SATELLITE CONTROL FACILITY (AFSC)  
AIR FORCE UNIT POST OFFICE, LOS ANGELES, CALIFORNIA 90045

*RAB-D-1-a*  
*my*

21 May 1969

OFFICE OF THE COMMANDER

SAFSS (General Berg)

Russ -

Attached is my answer to General King's comments on our Five Year Plan, a copy of which I also forwarded to [redacted] I am sending it to you for your information and as a back up to our Five Year Plan.

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JESSUP D. LOWE  
BRIGADIER GENERAL, USAF  
COMMANDER

RP  
FILE



SMOPA, [redacted] Gen Lowe/dh 20 May 1969

AFSCF FY 1970 Financial Plan, FY 1971 Budget Estimate,  
and Five Year Plan (FY 1970-1975)

SP-1

1. (U) Since receiving your letter of 6 May 1969 commenting on our Five Year Plan and our discussions of a few days ago, I have initiated an in depth review of our 40 foot antenna requirements and the "Standard" line item in your part of our budget. I would propose to go over the results of our review of these two items in depth with you in about one week and will not discuss them further at this time.

2. ~~(S)~~ General Comments:

a. I more than share your desire for a stable period for the AFSCF network during which we can consolidate and assimilate the existing network configuration. For the almost two years that I have commanded the network, we have been in the throes of a massive modernization program with a constant stream of changes to the stations and the STC. Over the past year, this disruption of the network due to equipment and software update has been particularly intense. I also fully agree that this type of instability constrains the flexibility of the users of the AFSCF and clearly increases the risk of a serious failure due to the network. The fact that there have not been more problems during this period speaks very highly of our technical and operational people as well as our good luck.

b. Although I was not involved in the planning and initiation of this over all modernization program and not one significant new update program has been begun during the past two years, I must say that time has fully validated the "hard requirement" and required usefulness of the systems being installed. The system upset and program risks were necessary in order to have a network that would meet the combined requirements of its users.

GROUP 3

Downgraded at 10 year  
intervals; not

automatically declassified.

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c. For the future, I can only agree with you that the AFSCF should not promote any "new additions which cannot clearly demonstrate a required usefulness or advantages over present capabilities." I assure you that we will continue to make changes or additions to the AFSCF network only when there is a "hard requirement" and only when that requirement justifies the disruption to the system that it involves.

d. However, identifiable within the AFSCF are three types of requirements. First are SP requirements, which have always received highest priority and special consideration. Second are "other program" requirements which at times carry a priority equivalent to SP's and frequently also are of great national significance. Last in categorical ranking are "AFSCF" or system requirements which are needed to prevent duplication, to reduce costs, to assure optimum effectiveness and efficiency, to correct deficiencies, to make the system play and to satisfy higher headquarters directives. Some of these AFSCF system requirements are not needed or desired by any of our users individually; however, they are still necessary and justify the disruption attendant with their installation.

e. In addition, some network improvements take as long or longer to develop and achieve than the satellite that requires them. If we wait until we receive a formal "hard requirement" from a program office, we frequently cannot satisfy that requirement on time. We must continue to work closely with the program office to assist in identifying possible requirements as early as possible. We must continue to study, plan, and sometimes test improvements and additions based on long than "hard requirements." We must continue to program funds in the out years for possible additions and improvements or the funds will not be available if the modifications prove necessary. Additionally, maintaining the budget level in the out years often makes funds available for those items we could not define until late in the budget cycle. This is true of most of the items in our technical acquisition program that you commented on.

f. It is not the intention of the AFSCF to perturb in any way supports of SP programs. With many different users, it is impractical and not always cost effective or desirable to add hardware on a program by program basis. Standard ground equipment, standard vehicle/ground interfaces, and automation are

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salient aspects of design philosophy which have been used to develop the AFSCF and its current capabilities. The future planning of the AFSCF must continue this philosophy and include development based on trends as well as specific requirements, use of general purpose equipment, modular subsystem structuring and the ability to accommodate new requirements primarily through software rather than hardware changes. Basing additions to the network solely on a program peculiar basis would be chaotic.

g. Finally, I must comment on our workload. The AFSCF's workload is not leveling off. The number of satellite programs is leveling off, the number of satellites on orbit (presently 52) is leveling off, even the number of station contacts is not increasing at its previous rate; however, the complexity of the new satellites and the data and support requirements (per vehicle and per pass) imposed on the AFSCF by our users is increasing rapidly. The net result is a continually increasing workload which requires changes and improvements from time to time, both to meet specific system needs and to permit successful workload accomplishment.

h. In our 18 April 1969 briefing of the AFSCF's funding submission, we pointed out and fully realized that the SAFSP share of our budget is becoming increasingly higher than the ratio of SP programs to the total programs supported. The submissions to both SAFSP and AFSC were made in accordance with the directions received and represented our best efforts to identify the total funding and projects necessary to meet the support of those DOD space programs requiring AFSCF on-orbit support through FY 75. No attempt was made to determine the cost to meet individual program requirements.

### 3. ~~(S)~~ Specific Comments

a. The Test Instrumentation projects listed on Page 2-2 are perhaps the least program peculiar items in the subject document. This is a special category of money used to investigate new technology or study its applications to foster improved AFSCF capabilities. The tasks that have been identified for study are designed to meet corrected needs and/or to increase the over all efficiency and reliability of the AFSCF. These studies postulate solutions to

future problem areas. It must be realized that these studies appear to be necessary at the present time, and one reason for the study is to confirm or deny the need. If the Test Instrumentation project results indicate that the suggested modifications are not warranted, they will not be undertaken.

(1) The Automated Remote Tracking Station, High Reliability RTS Configuration, the Programmable Data Distribution System are study efforts to examine potentials to decrease operator errors, to decrease both operations and maintenance personnel, to provide a fail-safe/soft configuration, to decrease station turn around time and to increase the efficiency and capability of the entire network, all very desirable objectives.

(2) The objective of the Integrated Aerial Recovery System Task is to accomplish a feasibility analysis, define and develop an implementation and test plan which will provide a reliable system to be used in the recovery of space packages. The present system is approaching 10 years of age and has caused increasing reliability problems in satisfying program requirements. In view of the general trend towards heavier space packages and in order to more accurately define the deficiencies of the current system, this study effort is most necessary. Advanced preparations must be made so that the replacement of the existing equipment can be accomplished before it becomes obsolete, unreliable or unsafe.

(3) The two remaining studies are concerned with areas where we envision difficulties in meeting anticipated requirements. In looking at the trends of space vehicle support, it appears that high data rates and sophisticated control and display are becoming more evident. The C&D effort is at present oriented to SAFSL; however, the results of this study could be applicable to future SP programs. In order to support advanced systems, the AFSCOP must evaluate the ground requirements and be prepared to implement them.

b. The following comments apply to the area/items as contained in Section 3, Technical Acquisition Program.

(1) Refurbishment and Removal - This category provides for the refurbishment and update of AFSCOP equipments, the removal

of obsolete equipment and, in general, is aimed at preventing degradation of our support capability. The projects in this category offer across the board improvements applicable to all AFSCIF users. While it is true that only certain projects can be tied to specific programs, e.g., the 2.2GHz Distribution System, it is unrealistic to support general system refurbishment only if it involves program peculiar support. For example, the grounding system project will correct deficiencies that impact directly on mission support. High noise levels caused by deficient grounding systems could make it impossible to properly receive data. Equipment Removal projects can also cause "across the board" support degradation. Unnecessary or obsolete equipment remains in line with mission support units and could reduce the reliability of that essential equipment. Additionally, if this equipment is not removed, continued expenditures of manhours and funds will be required for logistics and maintenance support. In reference to the possibility of incurring "considerable" downtime by implementing these projects, we can identify only one, Feed Refurbishment, where downtime may impact on support time. However, this is a mandatory project to correct corrosion failure of the 60' TT&C feed which if not corrected will result in a continuous decrease in allowable transmitter power. Failure to remedy this situation could result in complete loss of support capability at those affected stations. The implementation of this project can be adjusted for each individual antenna according to its criticality.

(3) The SGLS system at IOS was not programmed against Special Project requirements; however, Special Projects will be able to utilize the IOS SGLS station after it is implemented. It has always been the philosophy of the AFSCIF to maintain only standard stations and in any event a SGLS configuration at IOS will be mandatory to support similarly configured high altitude vehicles. The programmed SGLS modifications and improvements are required to alleviate discrepancies discovered in the installation and checkout of the new operational SGLS stations. This type of effort is normally handled under the WOP or Refurbishment and Removal projects. However, since the SGLS project has not been completed, it was more appropriate to include them here. These improvements will benefit all SGLS equipped vehicles including Special Projects.

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(3) The Advanced Data System (ADS) is a continuation of an on-going project which was briefed to Dr. Flax and is proceeding in accordance with his direction. At the present time, the ADS modifications at the STC are specifically directed towards MOL support; however, that portion of the effort at the RTS's will be used by all supported vehicles. The program as presented in the Five-Year Plan is consistent with the guidance received from the OSAF and the mission requirements as provided by SAFSL.

(4) The Recovery Item listed is primarily in support of Special Projects. The airborne recovery fleet must retain its high effectiveness rate. The Recovery category consists of those projects necessary to modify, refurbish and improve this capability. Specifically in FY 70, we intend to modify the recovery winch brake system which on two separate training missions has malfunctioned with resultant cable failure. Additionally, we will modify the hydraulic configuration of our C-130 aircraft so that a pump failure in flight does not jeopardize crew safety and success of the recovery mission. We can foresee no reduction in the requirement for recovery operations and are incorporating in our development efforts capabilities that exceed present "stated" requirements in anticipation of heavier recoverable vehicles.

(5) As I mentioned, the 40' antenna will be discussed fully later. Attached is a copy of our 8 November 1968 letter stating our case then and asking SAFSP to state its support or nonsupport.

(6) The AFSCF, among others, has been directed to vacate the 37.4-37.6 MHz band by 1 January 1975. Since frequencies in this band have been used by the AFSCF as backup for the command links, it will be necessary to provide a new backup command capability. The changeover will be studied in hopes to provide a plan which will minimize the impact on both the user programs and the AFSCF.

(7) The remaining items are follow-on efforts to the Test Instrumentation studies discussed above. If the studies indicate the efforts to be feasible and the related projects beneficial, the funds programmed will provide for their implementation and were included in the outyears in order to establish a budget level. It seems only prudent to maintain such a level and makes good sense

to program for the implementation of projected study results. In most instances, all programs will benefit by the increased capability and reliability of the network.

~~(C)~~ The movement of SATSP programs to the ASTC in FY 74 is the earliest time, as stated in our 18 April 1969 briefing, that this could occur. Such a move is consistent with the original concept of the Advanced Data System and has been recommended by Dr. Flax. It is a generally desirable posture since it will eliminate the duplicative operations of both the STC and ASTC. Certainly, we will not propose the move until the MOL ADS performance has been successfully demonstrated, you are satisfied with the capability of the ASTC, and SATSP agrees with the change. Again, however, it was necessary to program these funding levels in the outyear budget.

4. ~~(S)~~ The Contracts Operation and Maintenance Program (Section 11) portion of our Five Year Plan has never been itemized into separate program areas. I understand your statement that the ASTC portion of ADS is not needed for SP support. As you know, this effort has been discussed with and approved by Dr. Flax and [redacted]. Pending further direction, we have no alternate funding route for this SATSL required support.

5. ~~(S)~~ We have been attempting to work out a mutually satisfactory method of providing PCM data reduction at the STC as per your program requirement. Present review of your planned usage of a PCM ground station at the STC shows that in addition to a modified Radiation PCM ground station, a capability to display twenty analog signals, a computer (160) and associated software to format and record the data for further processing by an off-line computer (3800) is required. Estimated initial cost for the total PCM data station including analog equipment at the STC is 795K and is needed in FY 73. The O&M cost per year is 224K. The establishment of a PCM data handling complex at the STC establishes the precedent for other users (MOL, etc.) to obtain data reduction services from the AFSCF. This constitutes a change in long term AFSCF policy not to provide data reduction services for users. We are concerned that at some time in the future the effort to provide these services would become a significant part of our total activities. This would detract from our prime mission of providing TT&C services.



6. (U) As soon as you have had a chance to look this over, I would like to discuss it with you.

7. (U) I am sending a copy of this letter to [redacted] and Gen Berg for their information and as backup to the other information supplied on our Five Year Plan.

8. (U) This letter is classified SECRET to protect future AFSCF programming relative to SAFSP projects.

~~SECRET~~

JESSUP D. LOWE  
Brigadier General, USAF  
Commander

1 Atch  
8 Nov 1968 ltr,  
40' Antenna Project, (S),  
SMOPA-68-24, 2 pp,  
w/6 Atch (C)

Copies to:  
SMC (Gen O'Neill)  
SAFTM [redacted]  
SAFSS (Gen Berg)

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