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DEPARTMENT OF THE AIR FORCE
WASHINGTON

241

OFFICE OF THE UNDER SECRETARY

January 25, 1965

MEMORANDUM FOR THE DEPUTY SECRETARY OF DEFENSE

SUBJECT: Proposed Further Funding of FULCRUM

Events

On a visit to me on January 22, Dr. Wheelon communicated the data given below, outlining his proposed further funding of the FULCRUM project. He asked that in return I provide him with data on the studies of general search and surveillance systems that we are conducting. I gave him written information in the form of a copy for him of a letter to Mr. McCone. Your copy of the same letter is attached herewith.

FULCRUM

Dr. Wheelon made out essentially the following table for me.

		<u>February</u>	<u>March</u>
ITEK	Alternate #1	\$ 510K	\$ 470K
	Alternate #2	610K	
	Note (1)		
GE	Spacecraft	140	140
	Note (2)		
AVCO	Reentry Vehicle	140	140
	Note (2)		
STL	Note (3)	220	220
Perkin-Elmer		60	---
	TOTALS Note (4)	1,320K	1,110K

FULCRUM

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55-7
Page 1 of 4

~~TOP SECRET~~

Note (1) ITEK presently has 152 people on the project.

Alternate 1 provides for testing the dynamic mockup and for pay of 77 key people in the design team. Alternate 2, recommended by Dr. Wheelon, would keep 130 people on the design team. Alternate 2 was characterized as that required to maintain the pace of the design effort without committing to any long lead-time hardware. A third alternative, which would include long lead-time commitments, would cost \$1.1 M at ITEK. This third alternative was characterized as that which preserves a flight date of January 1967. Dr. Wheelon stated that two weeks of testing of the dynamic mockup will be financed out of the \$5.5 M already committed, and that a further \$100K is included for an additional two weeks of intensive testing. March funds at ITEK include only normal development testing.

Note (2) These figures were stated as continuing GE and AVCO at their present rate.

Note (3) This continues STL at the present rate, and adds \$100K for studies of boosters other than TITAN II.

Note (4) These are the recommended totals as stated by Dr. Wheelon. I have not yet reconciled the missing \$140K or \$150K.

Dr. Wheelon characterized the total recommended effort as incrementally initiating normal Phase II design and development, excluding long lead-time hardware (which, in these two months, is of concern only to ITEK). In addition, it includes the completion of feasibility testing of the dynamic mockup, and the winding up of backup studies at Perkin-Elmer.

Discussion

Up to this time, it has been a matter of debate whether all of the work being done on FULCRUM was necessary as part of a feasibility study. This is no longer an issue. All but at most \$300K of the work proposed for February is now frankly identified as part of the design phase, required at the present time to protect a development schedule and to preserve the development team.

~~TOP SECRET~~

There is certainly no question that the feasibility study should be completed with definitive testing at ITEK of the dynamical mockup, and by completion of the Perkin-Elmer work. With respect to the initiation (I believe that "continuation" is a more accurate word) of design and development the important questions seem to be:

Whether development effort seems warranted, ad interim or otherwise;

If development is undertaken, what are to be the roles and responsibilities of the NRO and the DOD?

How is our judgment on any of these matters to be made effective?

It has been and still is my own judgment that development effort on FULCRUM is not warranted. This is based on the conviction, now well reinforced by our current studies of alternatives, that a system simpler than FULCRUM, based on techniques already tested in flight, can be built which will perform at least as well in resolution and useful coverage, as was claimed last June for FULCRUM, and will have a greater assurance of reliability on orbit. We have in fact evaluated the weight penalties implied by this more conservative approach, and find that the TITAN ILLX Agena booster will support a system that performs better than FULCRUM in the search role, and can perform alternative missions as well.

Based on this judgment and these findings, I favor a minimum commitment to the future of FULCRUM, not only in order to save money, but also to avoid increasing a momentum that I think must sooner or later be arrested.

The minimum alternative is to complete definitive testing at ITEK and studies at Perkin-Elmer. According to Dr. Wheelon's breakdown, this would take \$160K. No design or development work would be involved.

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A natural stepup from this minimum is to accept alternative 1 at ITEK, and complete the studies at Perkin-Elmer. This would take \$570K. It would keep a design effort at ITEK and stop all other design and development effort.

In the case of either of these alternatives, the blow to the contractors who are shut off, GE, AVCO, and STL, is something less than mortal. The effort at GE is an adaptation to FULCRUM of backup work on a G3 spacecraft that is already funded and the GE team will not be dissipated very far. AVCO and STL have now been educated at the taxpayers expense and consideration could be given to inviting their bids in their respective spheres when a development program is finally agreed upon for initiation. Admittedly, however, to do this latter would introduce some further delay.

The final alternative, accepting Dr. Wheelon's recommended program for February, costs \$1.17 million according to his breakdown and \$1.32 million by his stated total. It is then \$600K to \$750K more expensive than the intermediate alternative, and at least \$1 million more expensive than the essential minimum. This money maintains the integrity of the team, thus protecting the two year development schedule, and keeps the team usefully engaged, thus advancing somewhat on the schedule.

Recommendation

I recommend that as of Tuesday, January 26, we go no farther than the intermediate funding alternate, \$570K, deferring determinations relative to the other efforts at least until after the preliminary review of alternatives now scheduled for February 2.

If you feel that the decision about a new general search system must be made in the present environment, then I further recommend that no funds above the \$570K be agreed to until after a specific plan is established for arriving at the necessary decisions and insuring their acceptance. I would be glad to discuss this latter issue with you further.

Attachment (Bye 36010-65)

cc - SecDef

4

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