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Mgt 1-1

NOV 19 1964

MEMORANDUM FOR COL BERG

1. This memo has been prepared in response to the following questions which you have raised.

- a. What are our current working instructions from Dr. McMillan?
- b. Have we so far satisfied any of our past instructions from Dr. McMillan? What?
- c. If we have not satisfied all current instructions, when do we intend doing so?
- d. Then, what is the next logical step?
- e. What instructions do (will) we need from Dr. McMillan?

2. In an attempt to answer these questions it seems most logical to first consider question 1b and summarize past instructions together with actions taken to satisfy these instructions.

3. Initial direction for what has since become known as the Dorian effort was contained in TWX SAFSS-1-M-1036 dated 7 Jun 63. This message directed that:

"-----SAFSP undertake a simulation of the possible utility of a man in performing the following specific reconnaissance tasks.

- a. Recognizing high priority targets and pointing very narrow swath width high resolution cameras so as to obtain coverage of these targets.
- b. Providing the recognition and control necessary to achieve highly accurate image motion compensation....."

I feel these two basic questions have been answered in considerable detail in the status briefing to Dr. McMillan on 28 May 64 followed by an EK presentation to PSAC on 5 Jun 64 and by the more recent series of presentations by EK, LMSC, Aerospace and SP to Dr. McMillan and PSAC on 21 Oct 64. The backup data for these reports are contained in the Phase I Dorian Final Report, the Monthly EK Progress Reports and the LMSC Experiment Reports. The only item here that might still be considered for additional work is the question of target recognition. This subject has an infinite number of variations and combination of parameters that could be considered if it were to be explored in complete detail. We are presently attempting to define an additional series of experiments at LMSC that will take a broader look at the acquisition problem. Such an experimental series would take into

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SPECIAL HANDLING



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account varying degrees of contrast, a wide range of possible targets presented at realistic oblique viewing angles, the effects of various types of briefing aids and the effect of targets in series as they might appear on an actual data run.

4. I know that you are well aware of the discussions and problems centered around the initial requirement as stated above for a simulation program, and the reasons which resulted in the decision to proceed with a study program with EK. As a result of this course of action we were directed by TWX [REDACTED] 0825 dated 3 Jan 64 to:

"-----Require the contractor to provide to the Air Force an early review of human factors data to insure that enough data will be available to carry out the work as described....."

This requirement was met by an EK briefing to Dr. McMillan on 9 Mar 64. This particular briefing was first presented to Gen Greer in Los Angeles on 24 Feb 64.

5. The following direction was received by Gen Greer from Gen Martin in TWX WHIG 1270 dated 22 May 64 -

"(S) DNRO desires to initiate a study with EKC to examine the possible unmanned Titan III payloads for the maximum high resolution system capable of being used with Titan III and having a swath width of not less than one and one half miles and of a broad coverage system with a maximum resolution compatible with a swath width of 150 miles. The purpose of these studies would be to complement MOL and to give a clear picture of a number of possible alternatives.

This study should be conducted with your present Dorian effort.

Desire your proposal for such a study effort including costs and time estimates by 1 June 1964."

This message was answered by TWX [REDACTED] 4983 dated 1 June 1964 prepared by Capt Gorman. The proposals contained in this message have been pursued by Capt Gorman and he is following the action in this area. To some extent this might appear contrary to the direction in the original TWX that this study be conducted with the present Dorian effort. However, Capt Gorman's effort at EK is under Chuck Spoelhof and could thereby be considered as being conducted with the Dorian effort.

6. The following direction was received by TWX WHIG 1638 dated 21 Aug 64:

"-----<(S) DNRO desires that Dorian and/or related effort include the objective of defining possible utilization of a manned laboratory in developing and improving unmanned systems..."

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This has been discussed with Capt Gorman and is being considered by [REDACTED] but no specific recommendations have as yet been defined. This subject should be considered as an open item.

7. In the area of manned SIGINT activities the following direction was received from Dr. McMillan in TWX WHIG 1726 dated 16 Sep 64 -

"-----I desire that your staff closely monitor the MOL manned SIGINT studies. When you consider these studies to have progressed to the point where meaningful comparisons can be made [REDACTED] a plan for these comparisons is to be submitted for my approval."

This message was acknowledged by TWX [REDACTED] 5821 dated 18 Sep 64 stating a plan for such a comparison would be submitted when appropriate. The MOL pre-project definition phase study referenced in the Secretary's message is for a three month period with AIL with a Final Report due date of 7 Dec 1964. We have been following the progress of this study with the MOL office and it is felt that the final report is needed before a meaningful comparison can be made. As to the plan for such a comparison, I feel that it should be based on the depth of information contained in the AIL report. We should consider if this comparison should be an inhouse Air Force [REDACTED] and Aerospace effort or should include some contractor support. To aid in this comparison our message also offered for Dr. McMillan's consideration a study of a manned SIGINT system [REDACTED]. His response to this suggestion contained in WHIG 1761 dated 22 Sep 64 and WHIG 1791 dated 2 Oct 1964 approved the proposed study and requested a copy of the work statement and security plan. These have been forwarded and work was initiated on 19 Oct 1964.

8. In response to the question concerning current working instructions from Dr. McMillan, I would say that all instructions have been covered in the paragraphs above with the exception of the basic implied instruction that we are to pursue the present follow-on work statement at EK. The goals of this effort are (1) to establish by study, experimentation, and analysis, a firm technological basis for the selection and definition of an optimized manned visual-photographic reconnaissance payload; (2) to establish the basic design configuration and (3) to identify critical payload design areas and to initiate design and breadboard fabrication of selected critical components.

9. We are rapidly approaching the time to initiate the next step and the time is at hand to consider such action. With the completion of the parametric study in mid January '65 the visual-photographic payload can be accurately defined. We should now be giving serious consideration

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SPECIAL HANDLING

to overall system studies and to a more complete simulation of the operational modes of such a system to include the input of any supporting sensors. The work at EK is now approaching the point where the support of an "integrating" or "systems" contractor is required to properly package this manned visual-photographic payload. This is not meant to recommend a full program type go-ahead at this time unless such were desired. Rather it is to recommend the complete system study and simulation that should be made to define the optimum total system together with the logical steps that could be followed to realize such a system.

10. The instructions we need from Dr. McMillan is the approval to proceed with overall system studies and simulations. As we have discussed, I would propose that we (EK, LMSC, Aerospace, SP) put together the story as we see it for a mid January presentation to Dr. McMillan.

Byron F. Knolle, Jr.
BYRON F. KNOLLE, JR
Lt Colonel, USAF
Dep Director, [REDACTED]

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