~~TOP SECRET~~

Handle via BYEMAN
Control System

[redacted]

2 APR 196[illegible]

MEMORANDUM FOR RECORD

SUBJECT: PRC Meeting, March 19, 1968

The March MOL PRC meeting took place at 1300 hours in the MOL Control Room at the Systems Office. The following principals were present:

Dr. Flax
General Ferguson
Major General Stewart
Major General Bleymaier
Major General Martin
Brig General Berg
Mr. John Kirk
Dr. Yarymovych
[redacted]

INTRODUCTION:

General Bleymaier opened the meeting by briefly reviewing key personnel changes within the Systems Office and describing the regrouping of certain tasks within his organization. The personnel changes were required as a result of the pending retirement of Colonels Kester, Wheeler, and Brassfield and the promotion of three of his officers to full colonel. The principal change in task assignment was the move of the Gemini B responsibility from Colonel Brassfield's Directorate to Colonel Norman's Directorate. This assigns to Colonel Norman responsibility for both the laboratory segment and the Gemini B segment, thereby, having a single individual responsible for program activities involving the McDonnell Douglas Corporation.

DEPUTY DIRECTOR'S REPORT:

General Bleymaier opened the formal part of his presentation with a review of the MOL financial status. He compared the current position with his report to Dr. Flax at the February 20 PRC and then discussed each contractors position in some detail. In general, the contractors are tracking fairly closely to the figures given them in December as the government's limitation of liabilities. Projection of available data to the current FY end-position indicates a variance of approximately plus $30 million. General Bleymaier expressed confidence that the final figure will probably be less than this. General Bleymaier's last chart on fiscal status depicted the program forecast summary on the value of work authorized and negotiated, authorized but not negotiated and projected but not authorized. He explained that the chart was prepared using contractor figures and these figures had not been reviewed and evaluated by the Systems Office. The total value

of all categories of work shown in the chart is approximately $2.8 billion. Dr. Flax asked if the projection reflected all items of work that everyone agreed were necessary for program accomplishment and General Bleymaier responded in the affirmative.

General Bleymaier then reviewed the status of the MOL SPO calendar 68 major milestones and discussed progress against these milestones. He indicated that data should be available to General Electric in April which will permit the elimination of one of the IVS contractors.

At the conclusion of the milestone discussion, General Bleymaier showed pictures of current work in progress at the associate contractors. One of the pictures from Eastman Kodak depicted the structural test model of the COA showing aluminum mass substitutes for the optical glass. Dr. Flax stated that he felt it was necessary for us to verify that the properties of the aluminum mass substitute were adequate and correct as a substitute for the optical glass.

General Bleymaier reported that work on the 71" ULE blank was going well. The first blank was accepted by the Joint MOL-Special Projects Acceptance Team and the team considered the ULE blank as an excellent piece of work. In fact, the team considered it better than the fused silica blanks received to date. Colonel Knolle stated that all indications pointed to achieving the August milestone for the decision on the use of ULE versus fused silica blanks.

General Bleymaier reported on the progress of Project Emily. He described work in progress to obtain uniformity, consistency and the elimination or minimization of deviations in the contractor Systems Performance and Design Requirements (SP/DR) baseline. This important effort is proceeding well. A great deal of effort has been expended; however, much work remains in the areas of interface documentation, contract end items (CEI), specifications and interface definitions. When completed, this work will provide the basis for a sound cost negotiation for all items not on contract, it will insure that no important item is overlooked and will reduce the contractor data requirements by a considerable amount.

In summarizing his presentation, General Bleymaier called attention to the fact that UTC is performing at a cost lower than the original UTC estimate due to the use of spin casting techniques in lieu of welding for the cases of the solid rocket motors. Dr. Flax injected a precautionary note by saying that we should carefully follow the application of the spin casting technique. He observed that on the surface, the technique appears better than welding but that one cannot be confident that a change in technique will not cause an unexpected change or condition in the material which could serve to our disadvantage.

DORIAN

MOL ADVANCED PLANNING PROGRAM:

Lt Colonel Skantz described the purpose of his briefing was to summarize the MOL Advanced Planning Program and to identify the advanced planning tasks for FY 69. He explained that he wished to outline the work that his small staff and the Aerospace people working with him had accomplished to date and the factors which they felt were pertinent to their future work. Colonel Skantz projected two conceptual categories of advanced MOL vehicles. The first category, identified as Block 2, was described as the next buy of vehicles which would incorporate modest improvements to the present baseline. Factors considered included lead times, decision points, size of the buy, and suggested areas of system improvement, such as on-orbit life, read-out capability, and enhanced pay-load performance. The second category, which Colonel Skantz identified as Block 3 MOL, was described as the growth step. Factors considered were the lead time and decision points, long duration missions, larger pay-load and alternative missions. Various options under each of these categories were discussed. Pertinent comment from the audience included the following: Dr. Flax observed that for the Block 2 vehicles the only cost which would be incurred in FY 70 would be those funds necessary to protect the lead times on the optical glass. Dr. Flax asked Colonel Skantz if he had examined the question as to what point the development of a rendezvous and resupply capability becomes cost effective. Colonel Skantz answered by saying that in his opinion an operational pay off could be realized on a schedule which would require four or five MOL missions per year. In regard to the Block 3 vehicle, Colonel Skantz described a concept for an unmanned resupply vehicle and stated that both Lockheed and Douglas were working on a system concept for such a vehicle. This concept envisions a Titan IIIB/Agena combination with a forward structure on the Agena housing expendables and life support resupply items. When asked by Dr. Flax his estimate of the cost of such a system, Colonel Skantz replied $350 to $500 million. Colonel Skantz suggested the potential use of the MOL vehicle, less pay-load, as an orbital test bed which could be used for a variety of test missions and stated that he thought it would be useful to contact other activities within the Air Force to ascertain what needs they may have for conducting experiments using MOL hardware. Dr. Flax asked Colonel Skantz his estimate of the cost of such a vehicle, to which Colonel Skantz replied about $60 million. Dr. Flax further commented that, in this case, the MOL hardware should be looked upon as a test bed for either a manned or unmanned use. Further he cautioned that should we go out to the Air Force with this suggestion there will undoubtedly be many replies and that everyone should bear in mind that there are no sustaining funds to fly space experiments. It would be necessary

to make it completely clear to anyone expressing interest that it would be necessary for them to supply the dollars to conduct the experiment and supply the hardware. Dr. Flax pointed out that, considering the difficulty we have trying to convince NASA to use its funds to buy the lesser expensive MOL hardware, the problem with the Air Force would be much more difficult because there are no such funds available. Dr. Flax interposed no objection to us looking for other customers within the Air Force. Pertinent to this point, although it occurred later in the meeting it is included here, General Martin strongly recommended that any solicitations for other Air Force users of MOL hardware should be very carefully controlled as it could produce considerable activity and focus on the program with very little useful purpose. Dr. Flax made the observation that such activity could very well appear like Apollo Applications in the public eye.

Other comments which took place during the advanced planning portion of the briefing included Dr. Flax's statement that, as a minimum, we must look ahead to making small individual improvements in various aspects of the system that will help extend the duration of the active on-orbit life. He also noted that it is the general responsibility of any planning group in a program to look at other work in other programs to see what can be applied from those programs to later versions of vehicles within the parent program. He stated that without commiting himself to any level of planning activities we must look at rendezvous and resupply in order to answer the many questions which we get on this subject.

General Stewart stated that we should consider read-out for the Block 2 version. Dr. Flax expressed the view that he was not much of a booster for a large dollar investment for a read-out capability in a program already hard up for money. General Stewart explained that what he wanted to do was study ways to provide an inexpensive read-out system. Dr. Flax stated that he had no objection to looking at the read-out system as a study exercise. He suggested that such a study could profit by looking at trade-offs whereby a cheaper and simpler read-out system could be employed by reducing the capacity of the system as in the case of the lunar orbiter (e.g. slow data transmission).

At the conclusion of the discussion on advanced planning, the question of the present financial exercise concerned with the President's budget cuts was discussed. Dr. Flax asked Mr. Kirk if he felt that we had done everything that we needed to. Mr. Kirk stated that as far as he knew, we had. Mr. Kirk also pointed out that in the DCP, and other statements, we had taken the position that unless the program were funded at a reasonable level compatible with requirements, we should publicly terminate the program. Mr. Kirk explained that this could put Dr. Foster in a difficult political position at this time.

This is because we are in an election year and adverse publicity to the administration could result from a public cancellation. Dr. Flax expressed the opinion that continuing the program in FY 69 at the $400 million level would be an unproductive effort. Mr. Kirk added that so sizeable a budget cut would provide additional ammunition to those critics who presently state that the [redacted] ground resolution is not worth the current program costs. At the $400 million level, the schedule will slip pushing the program back a considerable amount while adding to the program cost. Dr. Flax stated that we must amplify our present data in regard to total program cost and schedule impacts based on an FY 69 NOA of $400 million.

EXECUTIVE SESSION:

The purpose of General Stewart's briefing was to describe to the group the relation between the principal management issue of the MOL program as described in the DCP (which is the attainment of [redacted] resolution photography of significant targets in denied areas for technical, strategic and tactical intelligence purposes and issues related to the worth of obtaining these objectives versus the cost of the effort of the program) and the reservations of the DCI on this issue. The point of concern is the response of the DCI, Mr. Helms, to the MOL DCP. Mr. Helms was given the MOL DCP by Dr. Foster to allow Mr. Helms the opportunity to express his reservations concerning MOL which were known but not documented to that point. Mr. Helms' position is that he has reservations as to the value of [redacted] resolution photography for intelligence purposes. Mr. Helms recognizes that photography with resolution better than that obtained from current systems would be helpful but he does not believe that past studies performed by his organization demonstrate that the value of increased resolution justifies the cost associated with the MOL program. Mr. Helms has initiated a review and update of these studies.

In addition to the above background, General Stewart reviewed his discussion with General Carroll which indicated that General Carroll does not strongly support the program solely on the basis of very high resolution usage. Dr. Flax observed that both Mr. Helms and General Carroll see growing budgets on all sides which are attributed to intelligence functions. Dr. Flax supposes that they both see $600 million that could be devoted to other purposes or programs of greater interest to them. Dr. Flax feels that this is not a correct assumption and should MOL be cancelled, there is no reason for them to believe that the funds freed by the cancellation would be devoted to other intelligence gathering activities. Dr. Flax pointed out that Rivers and Mahon were supporting the proposition of a military capability in space; therefore, it does not follow that if MOL were cancelled Mr. Helms would get additional funding for his efforts.

DORIAN

General Stewart reviewed his recent discussions with General Thomas and explained that General Thomas had agreed for the AFNIN people to do a study to demonstrate the value of [redacted] resolution. General Stewart explained that the Program Office was updating and adding to our existing study on this subject. Additionally, we are looking at various options of system employment such as using different orbits. In regard to the latter point, Dr. Flax suggested caution with respect to placing to much emphasis on the use of MOL for daily repetitive coverage of a single target since the intelligence community has not supported the use of an unmanned satellite in this fashion.

General Stewart then described some short-term studies which he felt should be undertaken. The first of these was the study of improvements for Block 2 in which the objective would be to tighten the specifications throughout the system thereby improving the resolution to [redacted] Dr. Flax expressed the view that this might be useful but probably would not affect the outcome of the present controversy. If Mr. Helms does not agree with the need for [redacted] there is no reason to believe that he will agree with something less than [redacted] General Stewart stated that he would like to propose to Eastman Kodak that they conduct a study based on the present camera/vehicle envelope for the purpose of determining what modification could be made to the system to obtain a [redacted] resolution. Dr. Flax interposed no objection other than the thought that this would not influence the DCI.

At this point a general discussion took place which was led largely by Dr. Flax. His remarks were summarized as follows: We will have to get AFNIN and DIA thinking in a particular channel. This channel is an appreciation of confidence level in intelligence estimates. The DOD cannot use rather large uncertainties in estimates since these uncertainties have a very great impact on total cost of defense. The people who make estimates apparently feel that their job is finished when the estimate is complete. They apparently do not appreciate the significance of attaching a confidence factor to their estimates. For example, there are the GAMBIT^3 results showing that all the Soviet divisions in the central line in Western Russia were underequipped. They have trucks instead of tanks. The agency produced a report pointing this fact out but apparently did not appreciate the importance of this report in relation to U.S. military deployments in Europe. We must stress the importance with both AFNIN and DIA of the level of confidence and accuracy in the factors contained in the reports and estimates. I was briefed by the Army Missile Command on their analysis of the Moscow system. The Army had analyzed this system and given it a capability of covering all of Western Russia with a kill probability of .8. There is no estimate of confidence on this very significant conclusion. Dr. Flax said that he had asked Mr. Davis for an example

of why we needed very high resolution. Mr. Davis selected a Soviet radar associated with a Soviet missile system for his analysis. His study indicated that to be absolutely sure of the characteristics of the radar, it would be necessary to obtain photography with resolution of [redacted] If this is the case, it has very serious implications. To react to this situation you would have to be the Secretary of Defense to make such a decision. At present he gets such estimates along with force requirements and then must make the judgment. Another example of the puzzle is the Soviet MIRV. Should we be able to photograph one, the question still remains whether or not we can deduce anything by optical means. With regard to saying what you can save by better estimates and better intelligence, it is perhaps more important to know that the money you have spent you have spent correctly. Another example is the Tallinn missile case. We have had the capability to assess this system for some time, but we have, unfortunately, always had poor pictures of this system for a variety of reasons. Therefore, it is important to make the case for the average resolution provided by the system. We should get AFNIN and DIA to think in these terms.

SUMMARY OF ACTION ITEMS:

a. Determine the appropriateness of the aluminum mass substitutes for optical glass in the Eastman Kodak structural test COA. (Systems Office)

b. Verify the materials properties of the spun cast solid rocket motor casings developed by UTC. (Systems Office)

c. Study the principal factors of cost, schedule, lead time, configuration, etc. of rendezvous and resupply for MOL follow-on vehicles. (Systems Office)

d. Amplify and expand data available on total program cost and schedule impact of an FY 69 NOA of $400 million for MOL.
(Program Office coordination with Systems Office)
Charts used in the presentation on file in SAFSLP.

JAMES T. STEWART
Major General, USAF
Vice Director, MOL Program

DORIAN