~~TOP SECRET~~

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330

OFFICE OF THE SECRETARY

[redacted]

6 JUN 1969

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: MOL Decision

The attached papers were prepared jointly by our staffs in response to your request yesterday morning. We believe these papers represent the situation fairly and present prudent steps to implement the decision.

Dr. C. Seamans, Jr.
John Foster

~~TOP SECRET~~

DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
WASHINGTON, D.C. 20301

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: Manned Orbiting Laboratory (MOL)

Problem

The DoD faces severe pressures to reduce both FY 1970 and out-year costs. If we can severely curtail or abandon one or more large costly R&D programs, we can avoid paralyzing a great number of smaller ones. Consequently we have considered alternatives to the current MOL program.

Alternatives

Our opportunities boil down to:

1. Continue the present program which provides a manned system only (before we reduced the FY 70 for MOL last January from $576M to the current $525M, we were developing a system that could be used manned or unmanned).

2. Utilize the MOL camera system and optics as part of a new system that is optimized to be unmanned. This system would use the HEXAGON* booster and launch pad (TITAN III D) rather than the larger and more costly TITAN III M booster and launcher being specially developed for MOL. This would constitute a public termination of MOL.

3. Terminate all MOL activities immediately and do not develop at this time a photographic reconnaissance satellite system that provides a best resolution of [redacted]

* You will recall that HEXAGON is a new general search system with a best resolution of 2-3 feet.

Factors

Four factors need to be considered:

1. The value of the intelligence derived from photography with very-high-resolution.

2. The relative performance of the manned and unmanned systems.

3. Program schedules and risks.

4. Costs including FY 70 costs, one-time R&D costs remaining, and future recurring operating costs.

Intelligence Value

During the past ten years, the resolution of satellite photography has progressively improved. The earliest useful photgraphy provided 30-50 foot resolution. By 1967 the GAMBIT system was producing 3 foot and today it produces about [redacted] Every significant technical improvement [redacted] has provided a corresponding improvement in intelligence value. Since we may be reaching a plateau [redacted] and since higher resolution becomes relatively more expensive, DoD extensively studied this past year the value of MOL-like [redacted] resolution. We conclude that this resolution would provide many critical fine details which would allow us to determine a number of performance characteristics of emerging Sino-Soviet weapons systems well in advance of any operational tests, field deployment, or public display in parades or shows. If we achieve an agreement on arms limitation, the resolution would greatly increase our confidence that the agreements were being observed or it would probably indicate suspicious activity.

Dick Helms, Lee DuBridge and Edwin Land, Chairman of the PSAC Reconnaissance Panel, concur that MOL-like resolution will be very valuable.

Performance

When performing at their very best, the manned and unmanned systems will provide comparable resolution. The advantages of the manned are:

1. He would increase our confidence that flights early in the program will be productive and reliable.

2. Throughout the program, he would improve by 10-20% the average resolving power and increase by several-fold the number of photographs of time-sensitive targets, i.e., potentially critical targets.

2. He would make it possible [redacted] to take color photographs selectively, and to be adaptive in other ways.

4. He would provide information on man-in-space for military purposes.

A potentially significant advantage of an unmanned system might obtain if we were negotiating or monitoring a treaty that limited strategic arms. In this atmosphere of relative detente, a manned military overflight of the Soviet Union for reconnaissance pruposes might be considered sufficiently provocative to jeopardize the agreement or to cause us to forego very high resolution reconnaissance.

Schedules and Risks

The earliest operational dates for these options are as follows:

Manned MOL	July 1972
Unmanned optimized	March 1973

The manned system could have been operational earlier (January 1972) but about $70 million more would have been needed in FY 70. Similarly, the optimized unmanned system could be accelerated by deciding to proceed immediately using the HEXAGON spacecraft to carry the MOL-developed camera system and optics. However, in order to reduce development and recurring costs and optimize performance, we would propose to compete the HEXAGON spacecraft against a new one using MOL spacecraft components.

There appears to be no significant difference in the risks of meeting any of these schedules although the unmanned version would be a significant program change. The schedule risks are not expected to

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be higher because: (1) we have been developing completely "hands-off" systems for MOL, (2) at least some components from HEXAGON will be available and (3) we would not propose a crash development of the unmanned system.

Costs

Up to now, about $1.3B has been spent on MOL. The following table compares the remaining cost of the three options:

Option	FY 70	FY 71	Total Remaining One-time development	Recurring per launch
1. Current manned MOL	$525M	$600M	$1295M	$130-140M
2. Unmanned optimized	$250M	$230-300M	$845-1045M	$ 67- 73M
3. Terminat all June 15	$ 97M	---	$ 97M	---

The significant cost advantages of option 2 are:

1. FY 70 is $275M less than current program and FY 71 $300M or more less.

2. The recurring cost per launch will be about $70M less.

This would be very significant over a period of four to five years at 2-3 launches per year.

Evaluation

Current budget pressures make it extremely difficult to continue the current MOL program. Significant FY 70 and out-year savings are possible by cancelling MOL. However, because of the critical importance of very-high-resolution, we should continue an unmanned system. This system will be less capable than a manned system but we judge it can do the essential job.

Termination Scenario

Four steps should be completed before public announcement of termination:

1. Informally advise affected Government officials.

2. Advise former President Johnson, Bob McNamara, Harold Brown, and Gene Zuckert of our plans.

3. Notify in writing the Chairmen of key Congressional Committees and individual Congressmen whose states are most seriously affected (classified and unclassified draft letters attached).

4. Direct MOL contractors to terminate all efforts except covert camera activities applicable to an unmanned system.

After direction to proceed and general approval of the drafts, steps 1-4 could be accomplished by the close of business, June 10.

Then, almost immediately thereafter, issue a press release (a draft version is attached). If a press conference is desired, it should be held either simultaneously with the press release or within 1-2 days thereafter. (Sample questions attached)

Plan for Unmanned System

There are four stages in proceeding with implementation:

a. Stage I (Now to July 1969)

1. Reorient camera contractor efforts; begin terminating all manned contracts.

2. Prepare a plan for acquiring an optimized unmanned system as part of the NRP and present it to ExCom by the end of July.

3. Independently, initiate an increase to theAir Force Special Activities R&D account to provide for the "black" FY 70 funds required. Leave the MOL termination costs in the "white" MOL budget.

b. Stage II (Aug - Nov 1969)

1. Conduct a competition between the MOL and HEXAGON contractors, to select best configuration/performance/cost, etc.

c. Stage III (Dec 1969 - Feb 1970)

Evaluate contractor proposals and select best system configuration and winner.

d. Stage IV (Mar 1970 on)

Begin spacecraft/total system development.

John S. Foster, Jr.

Attachments (5)
Tab A - Proposed Press Release
Tab B - Sample Questions and Answers
Tab C - Propose Classified Letter to
Chairmen of Congressional Committees
Tab D - Proposed Unclassified Letter to
Chairmen fo Congressional Committees
Tab E - Proposed Letter to affected Congressmen

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Handle via BYEMAN
Control System

5 June 1969

DRAFT

PROPOSED CLASSIFIED LETTER TO CHAIRMEN
OF HOUSE AND SENATE ARMED FORCES
AND APPROPRIATIONS COMMITTEES

Dear Mr. Chairman:

I regret to advise you that we have reluctantly decided to terminate the Manned Orbiting Laboratory (MOL) Program. The primary reason for this action is to reduce Federal defense spending now and in the future. Further, we are confident that the MOL reconnaissance covert system can be operated in an unmanned mode.

The primary purpose of MOL, as you know, has always been the collection of technical intelligence through very high resolution photography of Sino-Soviet weapons and equipment. You will recall that when MOL was approved by President Johnson in 1965, only manual operation of the camera by the MOL flight crew appeared feasible. Later, as fully automatic operation of the camera began to appear more practical, there still were advantages to continuing development of the manned space vehicle. Additionally, it was also apparent that the MOL manned reconnaissance system would always posses certain unique capabilities and operational flexibility.

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Control System

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Unfortunately, the MOL Program development phase has stretched out and the total cost increased for various reasons. At the same time, the technology required to operate the camera in an unmanned satellite has moved ever nearer. Even at this stage in the MOL Program, it will be considerably less costly both in Fiscal 1970 and future years to terminate MOL, per se, and develop only the camera for possible future use in an unmanned system.

Since the camera payload in the MOL spacecraft has always been a very closely held matter (and is being developed under a covert contract), the public announcement will indicate that the entire program has been cancelled. The continuation of camera development and its probably future incorporation into an unmanned spacecraft will be handled covertly, as are the unmanned reconnaissance satellites in the National Reconnaissance Program.

So as not to jeopardize possible future covert use of the MOL camera, as well as both on-going and future activities of the National Reconnaissance Program, I solicit your assistance in not probing too deeply into the so-called "MOL experiments" during any full Committee discussions of the termination.

Bye 68375-69

Attached is an unclassified notice to you of MOL termination for use as you deem appropriate.

Sincerely,

MELVIN R. LAIRD

Bye 68375-69

DRAFT

PROPOSED PRESS RELEASE ON MOL

Deputy Secretary of Defense David Packard announced today the cancellation of the Manned Orbiting Laboratory (MOL) Program. This program was initiated in 1965 to acquire experience on what military man could do in space and involved several classified DoD experiments.

In making the announcement, the Deputy Secretary cited both the continuing urgency of reducing Federal defense spending and also advances in automated techniques for unmanned satellite systems as primary factors in the decision to cancel the MOL project.

Mr. Packard pointed out that in order to reduce the Defense budget significantly, it was either a case of drastically cutting back numerous small development programs or terminating one of the larger, more costly R&D undertakings. In the course of recent reviews, it had been concluded that the potential worth of possible future applications of the experimental equipment being developed for MOL, plus the information expected from the flights on man's utility in space for military purposes, while worthwhile, did not equate in immediate value to the sum of other DoD programs. Since it was possible to meet the most essential DoD space needs with less costly unmanned systems, the MOL was selected for cancellation.

The concept of the Air Force's MOL -- a 30,000 pound, 72 foot long spacecraft which would include a modified Gemini vehicle, a pressurized Laboratory capable of sustaining the two-man crew in a "shirt-sleeve" environment for 30 days, and a large unpressurized compartment to house experimental hardware; and would employ a Titan-III type booster -- was first announced in December 1963. Former President Johnson gave formal approval to the program in August 1965. Following a year of detailed program definition, sub-contractor competitions, and contract negotiations, full-scale system development began in September 1966. The first manned flight was then planned for December 1969.

Mr. Packard noted that for several years the program was deliberately underfunded, even though this increased total program cost, in order to reduce annual DoD expenditures. Schedules were also slipped in part to reduce the technical risk in this very advanced development. These factors and technical problems slipped the first manned launch from its original goal to mid-1972. He added that these delays were largely responsible for the increase in estimated total cost from approximately two to three billion dollars, of which about $1.3 billion has been spent to date. The Deputy Secretary emphasized that the project had been well-managed by the Air Force and was making good technical progress.

Mr. Packard stated that an orderly phasedown of MOL activities

will begin immediately. Some of the technology and hardware developed thus far will be used in other DoD unmanned space programs; the military construction portion of the launch complex at Vandenberg AFB will be completed this Summer, as planned, and then placed in a standby status; other hardware will be stored or disposed of as appropriate.

Principal effects of the MOL cancellation will be felt in California and St. Louis where the McDonnell-Douglas Company has large facilities devoted to MOL. Lesser effects will be felt at a number of facilities around the country including Valley Forge where General Electric has some MOL activity, in Sacremento where United Technology Corporation is developing the solid rocket motors for the booster, and in Denver at the Martin Company Titan-III facility.

Secretary Packard cautioned that not all of the $525 million now included in the Fiscal Year 1970 Budget being considered by the Congress would be saved, noting that sizable termination costs were involved, some of the more promising MOL technology would be pursued in other Air Force programs, and other programs at the affected facilities probably would have higher costs because of the MOL cancellation.

* * * * * *

QUESTION: Exactly how much has been invested in MOL:

ANSWER: The DOD will have expended about $1.4 billion on MOL since its inception.

QUESTION: What fraction of the investment to date will be wasted?

ANSWER: Of approximately $1.4 billion expended, at least $400 million of the investment can be diverted to other applications.

QUESTION: What have been the specific major accomplishments that now allow you to proceed with unmanned systems?

ANSWER: In the interval between Program approval in August 1965 and the present, there have been many advances in space science and technology. Aside from the experimental equipments and a few other exceptions, the MOL technology would have been over ten years old when it finally flew. This reason, coupled with ever-increasing advances in unmanned space technology, gives us confidence that we can accomplish the major foreseeable military missions in space with unmanned systems.

QUESTION: What kind of unmanned systems are you talking about?

ANSWER: The kind we presently have, communications, navigation, surveillance, etc.

QUESTION: Wasn't MOL really a reconnaissance satellite?

ANSWER: The MOL had a classified military mission to perform.

QUESTION: What experimental hardware will be continued?

ANSWER: We have not determined the answer to that.

QUESTION: Aren't there some roles for military-man-in-space that can only be determined with actual experience?

ANSWER: Yes, and the NASA experience tends to confirm this conclusion. As a result of these experiences we have not found major new military roles for man in space. Some of the best minds in the country have worked that question for years and I don't feel there are any surprises.

QUESTION: As a result of this cancellation, what contractors and areas will suffer?

ANSWER: There are 10,000 to 12,000 individual jobs directly identified with the MOL program. The majority of these are in California. The principal contractors are McDonnell Douglas, General Electric, Martin Marietta, United Technology, Aerojet General and AC Electronics.

In addition there are hundreds of subcontractors. These contractors and subcontractors will, of course, have to determine the detailed impact of the MOL termination of their work forces.

QUESTION: When the program was started, the cost was estimated to be $1.5B and initial launch was projected for late 1968. If we didn't cancel, total costs are now estimated to have doubled and the initial launch is 3½ years later. How can you claim that the Air Force has managed the program well?

ANSWER: The increase in cost and extensions in the MOL schedule were caused by three basic things: First, as the Air Force got into the program, it was decided to fly more advanced experimental equipments. As the work progressed, it became clear that the experimental equipments were harder to build than we first thought. Secondly, there was the effect of growing inflation throughout our economy. Thirdly, the program has been deliberately stretched out by DOD several times. While these stretchouts reduced MOL funding in any given year, they added materially to the total cost of the program and schedule length. The Air Force

and its contractors did a good job under very difficult management circumstances.

QUESTION: Is the MOL cancellation part of a larger overall Administration plan to depress the economy and reduce inflation; if so, do you plan to cancel other programs and what are these?

ANSWER: Our only plan is to reduce the size of the DOD budget. To do this we must eliminate items from that budget. We must make choices and we elected to eliminate one large program rather than discontinue a number of smaller programs.

QUESTION: Over the past several years the Air Force in particular and the DOD in general have put millions and some times billions of dollars into various programs and then, at some point in the middle of the program, the program is cancelled. What do you propose to do to avoid the great waste in the future?

ANSWER: In the worthwhile research and development there is always uncertainty as to the best approach and future funding conditions. In hindsight it is always possible to claim that funds are "wasted." In fact we cannot keep pace as a nation without running some

risks and exposing to hindsight some "waste." We are instituting new management procedures in DOD which are designed to further minimize "waste." The system we are putting into practice will provide for very detailed reviews at major program milestones to insure that the work is proceeding against established goals within target costs.

5 June 1969

DRAFT

PROPOSED SECDEF LETTER TO THE CHAIRMEN
OF THE HOUSE AND SENATE ARMED SERVICES
AND APPROPRIATIONS COMMITTEES

Dear Mr. Chairman:

I regret to inform you that the Department of Defense has terminated the Air Force Manned Orbiting Laboratory (MOL) Program. This action has been reluctantly taken as the result of the necessity to reduce Federal defense spending.

In arriving at this decision, a number of factors were considered. First, it is clear that most essential DoD space missions can be accomplished with lower cost unmanned spacecraft. Second, the potential worth of possible future applications of the experimental equipment being developed for MOL, plus the information expected from the flights on man's utility in space for military purposes, while worthwhile, did not equate in immediate value to other DoD programs.

In order to reduce the defense budget significantly, it was necessary either to drastically cut back numerous small development programs or one of the larger, more costly R&D undertakings. In view of the above, the MOL was selected for cancellation.

I know this action will be of particular concern to you, as it is to me, because it will result in the termination of major defense contracts with the McDonnell-Douglas Company, General Electric, Martin, and numerous subcontractors and vendors in many States. It should be clearly understood that termination is not in any sense an unfavorable reflection on any of the MOL contractors. They have all worked very hard and have achieved excellent results.

Likewise, MOL termination should not be construed as a reflection on the Air Force. The MOL goals were practical and achievable; maximum benefit was being taken of hardware and experience from NASA and other DoD space projects; and the program was well-managed and good progress was being made. Under other circumstances, its continuation would have been fully justified.

Sincerely,

MELVIN R. LAIRD

5 June 1969

DRAFT

PROPOSED L&L LETTER TO CONGRESSMEN

Dear (Senator or Representative)

I regret to inform you that the Department of Defense has terminated the Air Force Manned Orbiting Laboratory (MOL) Program. This action has been reluctantly taken as the result of the necessity to reduce Federal defense spending.

In arriving at this decision, a number of factors were considered. First, it is clear that most essential DoD space missions can be accomplished with lower cost unmanned spacecraft. Second, the potential worth of possible future applications of the experimental equipment being developed for MOL, plus the information expected from the flights on man's utility in space for military purposes, while worthwhile, did not equate in immediate value to other DoD programs.

In order to reduce the defense budget significantly, it was necessary either to drastically cut back numerous small development programs or one of the larger, more costly R&D undertakings. In view of the above, the MOL was selected for cancellation.

I know this action will be of particular concern to you as it will result in the termination of the MOL (sub) contract with _____ for _____ in your (state) (district). It should be clearly understood that termination is not in any sense an unfavorable reflection on any of the MOL contractors. They have all worked very hard and have achieved excellent results.

Likewise, MOL termination should not be construed as a reflection on the Air Force. The MOL goals were practical and achievable; maximum benefit was being taken of hardware and experience from NASA and other DoD space projects; and the program was well-managed and good progress was being made. Under other circumstances, its continuation would have been fully justified.

Sincerely,

SecDef or L&L Signature