

OFFICE OF THE SECRETARY OF DEFENSE

11-23-68

MEMO FOR Dr Flax

I can't seem to  
refrain from "selling"  
MOL.

attached comments  
for your information.  
I hope Dr Foster can  
use them to high light  
some of the real problems  
for the next "team"  
in ODDR&E.

John Kirk



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

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MEMORANDUM FOR DR. FOSTER

SUBJECT: Past Experience on the MOL Program

I am submitting these thoughts on the MOL program for your consideration as a part of the "lessons learned" in ODDR&E over the last several years. The MOL DCP is being revised and the value of very high resolution to intelligence is being discussed in depth by members of the "Intelligence Community".

The following points are difficult, if not impossible, to prove by analysis until time has passed. For this reason, I fear that as new personnel become involved in MOL in the coming months the program may suffer more from a lack of in depth understanding of the program than anything else.

The first point to be made is to explain why relatively small budget cuts have so much impact on a sizable program:

1. Most of the large programs in RDT&E have equally large or larger production programs coming along which give the contractors some degree of flexibility in the financial risk they are willing to sell the company directors to continue a stretched RDT&E program. MOL has no appreciable production base planned.
2. The program is stretched very thin financially and, in fact, was slightly underfunded in both FY 68 and FY 69 for the work underway.
3. The small number of end items which are very expensive make the scheduling of the interfaces far more critical on this program than it is on most RDT&E programs.



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4. The MOL program is at the point where schedule slippage often buys little in the way of improved confidence of design but the slippage results in large disproportionate costs because the manpower is near the peak.

The combined effect of the above factors requires that for every dollar reduced in FY 69 and FY 70, two to three dollars must be replaced in the out years to get the same number of end items.

Secondly, one major area where consideration could be given to keep the program balanced financially, if reductions are forced on the program, is to eliminate the unmanned version of the MOL mission flights. While this would not save a large sum of money, this change in objective would permit a small reduction in funds and allow 100% concentration on one design.

Third, a re-examination is in order on the reasons whether an unmanned version of MOL should be included in the program to meet the basic MOL objectives.

1. PSAC and the State Department felt there might be international objections to flying the manned version of MOL. The current Apollo Program and the USSR manned programs have all been accepted internationally. No objections have ever been raised against US unmanned satellites either. It might be that the acceptance of these programs is so routine today that the international level of interest is lower than anticipated. The manned MOL flights will be only one of several manned orbital flights scheduled for roughly the same time frame. Normal publicity will be given in advance of the MOL flights on all aspects except the mission. International reaction does not seem to be a factor at this time.

2. At one time, possible physiological problems associated with 30 days on orbit were of major concern. Each success of the Apollo program reduces this concern further. It now appears that the physiological problems of the astronauts will be negligible.

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3. It was felt that the unmanned design would be cheaper to develop and operate. In areas where meaningful comparisons can be made (total cloud-free photographs, specific objectives, etc.), the manned MOL produces in 30 days almost the same take as a 56 day unmanned version. MOL will also double or triple the number of time-sensitive, high value targets photographed. The difference in recurring cost between the two versions is small. Finally, man can do certain things which cannot be done with the unmanned version. Man can substitute color and special film, filters, peak camera adjustments to provide optimum scale and angle. [REDACTED]

[REDACTED] Finally, the manned system has more growth potential in terms of camera resolution (most significant improvements involve reduced fields of view, making pointing much more difficult for the unmanned system).

4. At one time it was felt that the unmanned MOL might replace the GAMBIT<sup>3</sup>. The price of the unmanned MOL is apt to be equal to about three G<sup>3</sup> missions (16-18 day versions). At this time the desired frequency and volume of target coverage, plus the option to have a G<sup>3</sup> on standby for international crises or other QRC needs seems to dictate about three to four G<sup>3</sup> and two manned MOL's per year as the best mix. The long term needs of the satellite reconnaissance programs for photography may best be answered by HEXAGON (search), GAMBIT<sup>3</sup> (med. resolution) and MANNED MOL (very high resolution) combined to provide the appropriate target coverage desired in the 70's.

*John Kirk*  
John Kirk

Special Assistant  
Southeast Asia Matters

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