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MEMORANDUM FOR DR. FLAX

SUBJECT: SAF Comments on MOL Monthly Status Report for
February

Reference is made to Dr. Brown's margin notes on pages
2 and 3 of the attached Monthly Status Report.

Our work on the question of the value of DORIAN-quality
resolution to the National Reconnaissance Program is a con-
tinuing effort which will continue to be pursued by this
office. The report which summarizes the results of this work
are periodically updated, with the assistance of General
Thomas' people and the DIA staff. The most recent iteration
of our high-resolution value study is dated January 15, 1968.

I briefed General Carroll, Admiral Lawrence and key DIA
people on March 8, and took that opportunity to discuss the
substance of both Dr. Brown's "value" comments with them and
also the March 5 memo from Mr. Helms (in the vein that DIA
would undoubtedly become involved when CIA completes their
analysis of "studies completed to date" and/or any new studies
on the value of resolution). I have the impression, based on
several questions posed with regard to flexibility of the MOL
photo system (as an indications warning system, crisis manage-
ment) and for possible other applications, that General Carroll
also has some reservations on the value vs cost area.

With respect to Dr. Brown's comment on GE's projected
reassignment of the Mission Data Adaptor Unit (MDAU) subcon-
tract from Raytheon to Honeywell or IBM, the proposal submitted
by Raytheon (on Feb 14) for \$8,250,000 was on a CPIF basis.
Since any fixed-price bid would have been higher than their
CPIF proposal, no such bid was solicited by GE (As you probably
know, GE would prefer to go CPIF, but recognize that we may

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direct them to go FPIF). At no time in the recent flurry of activity over the MDAU subcontract has Raytheon presented a really competitive cost quote, on any basis.

IN: CHIEF EAST WING

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

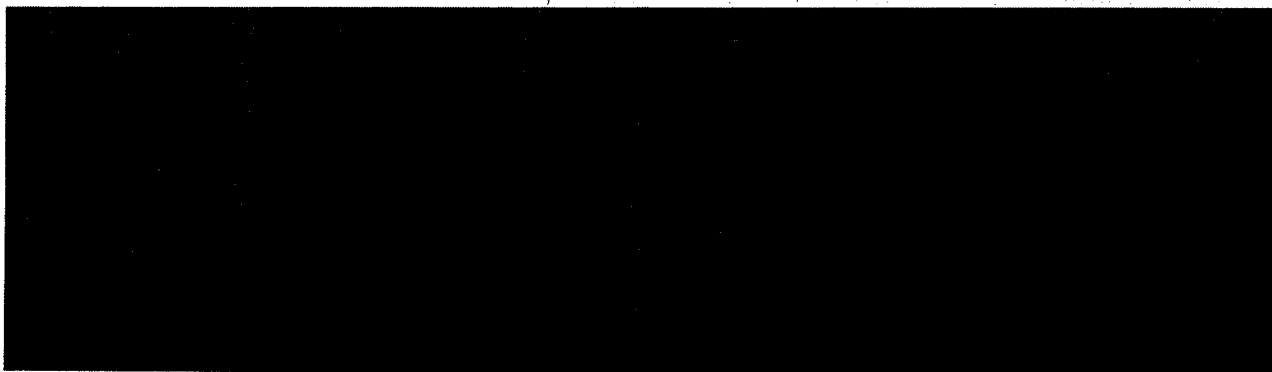
Reference is made to the meeting on 11 July 1966 at which time the MDAU subcontract was discussed. Dr. Stewart, President, advised that Ambassador Bohlen questioned the effort to purchase various subpackages under the cost, and advised that a committee consisting of the NSI, the NSR, the NSM, NASA, and the NSG is currently reviewing the MDAU subcontract. Bohlen also noted that the MDAU subcontract was approved by USCIB and indicated the MDAU subcontract of NSM 156 Committee will be in effect.

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On 11 July 1966, briefing on MOL and the NSM 156 Committee was given to Ambassador Bohlen and a group of State Department staff members. DoD representatives included Mr. Glaze, Dr. Roster, Dr. Flax and General Stewart.



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WORKING PAPERS

I. PROBLEMS

None.

II. CHANGE PAST MONTH

A. February 14 Space Council Meeting

One of two agenda items for the February 14 meeting of the Space Council was the question of how, in view of MOL security constraints, MOL/AAP could be presented to the Congress and the public without the appearance of duplication. Dr. Foster, Mr. Webb, and General Stewart addressed this question, to the apparent satisfaction of the Vice President. However, in the discussion following the briefings, Ambassador Bohlen questioned the relative value of the MOL reconnaissance product versus the projected total program cost, and suggested that a committee consisting of the Secretary of State, the DCI, the Administrator, NASA, and the Secretary of Defense reevaluate the need for MOL. Ambassador Bohlen also noted that the program had never been "approved by USIB" and indicated his feeling that approval of MOL by the NSAM 156 Committee would be in order.

Mr. Bohlen's remarks suggested the possibility that he was not entirely clear as to the purpose and functions of the USIB or the NSAM 156 Committee. Further, he seemed not well-informed regarding current MOL status. Consequently, Dr. Foster suggested to Ambassador Bohlen, in an aside, that a comprehensive MOL briefing might be useful. Mr. Bohlen agreed.

On February 16, briefings on MOL and the NSAM 156 Committee were given to Ambassador Bohlen and a group of State Department staff members. DoD representatives included Mr. Nitze, Dr. Foster, Dr. Flax and General Stewart.

Mr. Bohlen's questions centered largely on the need for DORIAN-quality resolution, and the cost/value relationship between mature KH-8 photography at [redacted] average resolution vs MOL photography at [redacted] average resolution. Mr. Nitze and Dr. Foster were emphatic in their defense of the need for the MOL product, and both expressed the view that the product is worth the cost. Mr. Bohlen was rather non-committal in his reaction to the explanations he received.

we should continue to work on the question of value of resolution. DIA + MOL staff + Jackie Thomas staff can probably best update what has already been done.

The discussions ended without any apparent follow-up actions required at this time on the part of SAFSL or the NRO.

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B. MOL Mission Data Adapter Unit

The MOL subcontract from General Electric to the Raytheon Company for the MOL Mission Data Adapter Unit (MDAU) was the subject of extensive review by both General Electric and the Air Force during February. This review has demonstrated conclusively that the Raytheon price for the unit is not competitive, by a substantial margin, and that the Raytheon design is inferior technically to alternative designs proposed - against current MDAU specifications - by Honeywell and IBM.

The comparative price positions of the three potential suppliers of the unit, as of late February, are tabulated below:

	<u>Raytheon</u>	<u>IBM</u>	<u>Honeywell</u>
Feb 22	\$8,250,000 (CPIF)	\$4,696,000 (CPIF)	\$4,565,000 (CPIF)
Feb 26	Not Solicited	\$4,860,000 (FPI)	\$4,710,000 (FPI)

The fixed-price-incentive proposals from both IBM and Honeywell reflect substantial contractor confidence in their estimates, and are the basis of the current General Electric judgment that significant dollar savings can be realized by changing the MDAU subcontract from Raytheon to IBM or Honeywell. General Electric has decided to terminate the Raytheon contract and award a new contract to one of the other bidders. In order to obtain government endorsement of their decision, General Electric solicited MOL Systems Office concurrence. Due to the criticality of the item to MOL and possible political considerations, Dr. Flax has been advised and his concurrence requested.

It seems to me we will have a difficult time if they were not solicited to give their FPI proposal.

This potential change was the subject of an inquiry from Speaker McCormack's office, dated February 21, 1968. A response to Speaker McCormack's letter is in preparation.

C. MOL Program Review Council Meeting

The MOL Program Review Council met at the Pentagon on February 20. The following is a summary of significant decisions taken at the meeting:

1. Flight Duration, Vehicles #6 and #7. Vehicles #6 and #7 (unmanned, automatic) will be designed and provisioned for a mission duration of 60 days. This extended duration will require additional propellant and cryogenic tankage. The cost impact of this decision is estimated at \$13 million (spread over three Fiscal Years).
2. Laboratory Module Acoustic Qualification Testing. Acoustic qualification testing of the MOL Laboratory Module will require a new test facility, and will present scheduling problems. The MOL Systems

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Office will reevaluate the need for such testing, and provide Dr. Flax with an assessment of the technical impact of not performing acoustic qualification testing on the Laboratory. This analysis will include development of costs and schedules associated with acquisition of a new acoustic test facility.

3. Low-Coefficient Optical Materials. Three mirror materials have been under consideration for DORIAN: (1) Fused Silica; (2) a low-coefficient version of fused silica designated ULE; and (3) a ceramic-vitreous material designated Cer-Vit. The following decisions regarding employment of these materials were taken on February 20:

a. Eastman will initiate procurement of ULE asphere blanks for primary mirrors. Fused silica will be retained as a backup.

b. For tracking mirrors, the program will continue with both ULE and Cer-Vit. The decision on which material to fly will be made not later than August, 1968.

c. All flight folding mirrors will be ULE.

d. A minimum of three Cer-Vit solid master test mirrors will be procured.

An evaluation team will be formed by the Systems Office to conduct an in-depth review of the DORIAN optical system. Drs. Mynel and O'Brien will be invited to participate.

4. Procurement Plan. Definitive contracts, including all work known to be part of the baseline MOL program, will be executed with all major Associates by December 31, 1968. Target costs will not exceed an aggregate total of \$2.84 billion for Phase II effort.

5. ██████████ Astronomy, and IR Imagery. The Council determined that no special provisions for IR film will be included in the MOL system. ██████████ astronomy experiments will not be considered in the baseline program.

D. MOL/SIVB Experiments Contract

A Fixed Price Incentive contract for \$694,000 has been let with the McDonnell Douglas Corporation, Huntington Beach, California, for MOL experiment packages for the NASA SIVB orbital workshop.

The contract provides for fabrication of test structures for the suit donning, sleep station, and restraint experiments, and the integration of the MOL part of the SIVB experiments package.

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III. CURRENT STATUS

A. Congressional

1. Briefings. In connection with the continuing effort to keep key Congressional Committee members and staff members abreast of MOL objectives and status, the following MOL briefings were presented during February:

<u>Date</u>	<u>Committee</u>	<u>Individual Briefed</u>
February 5	House Science & Astronautics	Reps Miller, Karth, Daddario; Mr. Gerardi, Staff
February 7	House Armed Services	Reps Rivers, Bates; Mr. Blandford, Staff
February 8	Senate Armed Services	Mr. Kendall, Staff
February 9	House Appropriations (Mahon Subcommittee)	Messrs Michaels, Preston, Sanders, Staff
February 28	House Armed Services (Price Subcommittee)	Reps Price, Hall; Mr. Morgan, Staff

2. MOL Fuel Cell Inquiry. In a letter to the Secretary of the Air Force dated February 2, 1968, Congressman Laird (Wisconsin) inquired on behalf of Allis-Chalmers as to the cost and safety aspects of conventional Bacon-type fuel cells, and proposed that certain benefits might accrue to the government through a change to the Allis-Chalmers fuel cell design for MOL and AAP. Mr. Laird was advised on February 21 that the present Pratt & Whitney cells are progressing satisfactorily at this time and that no change is contemplated, but that the government retains an active interest in the Allis-Chalmers design.

B. Funds

There were no funds released to MOL operating activities during February. Of the \$430 million (FY 68) released by DoD to MOL, \$80 million is presently retained by the Director, MOL. These funds will be issued to the MOL Systems Office during March to cover 4th quarter FY 1968 requirements.

C. Easter Island

In November 1967, the Government of Chile agreed that the USAF may use Easter Island as a staging base for aircraft supporting MOL abort recovery operations. On February 14, a letter was forwarded from

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General McConnell to General Errazuriz, Commander in Chief of the Chilean Air Force, through our Chilean Embassy. This letter designated Brigadier General Brooks, Commander, ARRS, as General McConnell's representative in working out detailed arrangements with the Chilean Air Force. On March 12, General Brooks and members of his staff will attend a meeting in the MOL Program Office to receive [REDACTED] briefing on Easter Island and an indoctrination which will assist them in their approaching negotiations.

IV. FORECAST FOR FUTURE

NASA Bioastronautics Briefing

A review of ground based study programs to define the expected crew adaptation to the MOL 30-day mission will be presented to key NASA Manned Spaceflight Bioscience personnel and the members of the Biosciences Subcommittee of the Manned Spaceflight Science and Technology Advisory Committee on March 15. Also in attendance will be Dr. Eugene Stead, M.D., Chairman of the Biosciences Subcommittee of the PSAC Science and Technology Panel. The review will be held at the AFSC Aerospace Medical Division (AMD), Brooks AFB, Texas. The program will present the joint AMD and MOL Program to develop the data needed to identify what adaptive changes can be expected, to establish the 30-day mission significance of these changes, and, where appropriate, to develop the control devices or procedures needed to keep the changes within acceptable mission bounds. The discussion is being scheduled because of the similarity of the NASA and MOL problem of extending man's exposure to longer periods of weightless flight and the advantages to be gained by bring the bioastronautics studies for the NASA Apollo, Apollo Applications, and MOL programs into closer cooperation.

V. DUE DATE FOR NEXT PROGRESS REPORT

The next Monthly MOL Program Progress Report will be submitted April 9, 1968.

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