

~~TOP SECRET~~

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330

Handle via BYEMAN
Control System



OFFICE OF THE SECRETARY



MEMORANDUM FOR THE SECRETARY OF THE AIR FORCE

SUBJECT: Manned Orbiting Laboratory Monthly Status Report

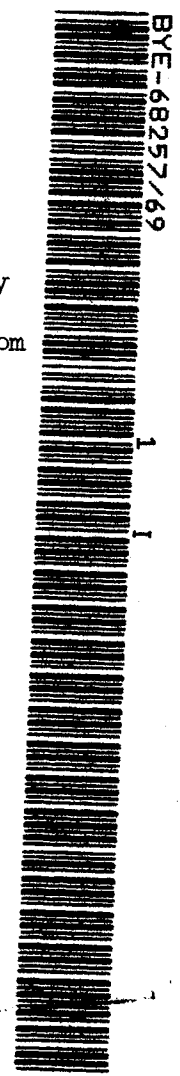
The attached Status Report on the Manned Orbiting Laboratory (MOL) Program covers activities through February 28, 1969 and is submitted in accordance with the February 17, 1969 memorandum from the Office of the Secretary.

If you wish, prior issues of the monthly report can be made available for your review.

JAMES FERGUSON
General, USAF
Director, MOL Program

Atch
a/s

not sent



DORIAN

Page of pages
Copy 1 of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

I. PROBLEM

SLC-6 Construction

It has been apparent for some time to the MOL Systems Office that the SLC-6 construction (being managed by the Los Angeles District, Corps of Engineers) would not be completed by the April 1 target date. In a February 10 meeting with General Bleymaier and General Stewart, the Chief of the Los Angeles District stated that November 1 was a more likely completion date and that cost would exceed available funds by an estimated \$3.5 million.

An Ad Hoc Committee was formed at the request of Generals Stewart and Bleymaier to investigate the situation. The group was composed of personnel from Hq AFSC, AFOCE, and Army Corps of Engineers.

The investigation was completed on February 26 and a delay and the cost increase were confirmed. It was recommended that the Corps of Engineers and its contractors be relieved of the requirement for Electromagnetic Interference Testing (EMI) at the pad (cost and responsibility to be assumed by the MOL Program). In the report, the Committee also discussed the necessity of a construction schedule change. The new estimated completion date is now September 1, 1969. Fortunately, there was some buffer time and SLC-6 will not yet be a pacing item.

The Ad Hoc Group will form again in two months to evaluate and determine if satisfactory progress is being made.

II. CHANGE PAST MONTH

[REDACTED]

The MOL Systems Office is now involved in Source Selection Board evaluation of bids for the ground software required for the [REDACTED]. [REDACTED]. Technical proposals have been received from General Electric, TRW, and McDonnell Douglas. The cost proposals associated with the technical statements of work were to have been received by the Systems Office by February 28, 1969. The Source Selection

DORIAN

Page of pages
Copy of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

Board estimates completion of its evaluation task by March 7, 1969 and hopes to submit a recommended contractor selection to the Program Office sometime in the latter part of March 1969.

The air-borne software and simulator tasks have already been incorporated into the MOL contract with General Electric.

The Program Office is now planning for a briefing to [REDACTED] personnel in order to commence coordination with that organization on the interface requirements involving the [REDACTED] network. This briefing will probably take place at [REDACTED] sometime in April 1969.

III. CURRENT STATUS

A. MOL Briefing to Deputy Secretary of Defense

In January, MOL was one of about ten major Air Force systems identified by Mr. Laird for review by Mr. Packard in conjunction with the FY 1970 budget. In the four hours scheduled for those reviews, only about 20-30 minutes could have been allocated to MOL. In view of Dr. Selin's (OSD Systems Analysis) assertions to the previous and present Deputy Secretary of Defense that very high resolution photography is not very significant to the DOD, or if it is, that there are far cheaper routes than completing MOL, Dr. Foster and Dr. Flax recommended to Mr. Packard that a separate and more-in-depth MOL review be held. This was done on February 8.

A three-part briefing was given: 1. The MOL Program and alternative approaches to securing very high resolution photography, presented by General Stewart; 2. the value of very high resolution photography, by Mr. Hughes (DIA); and 3. the value of much earlier and much better technical intelligence to DOD force structure planning and R&D decisions, by Mr. Palley (DDR&E). Mr. Packard's questions were directed for the most part toward understanding the MOL Program and the application of technical intelligence information by the DOD.

Principals in attendance were Dr. Brown, Dr. Foster, Dr. Flax, General Carroll, Mr. Moot, and Dr. Selin. Drs. Brown, Foster, and Flax, and General Carroll strongly supported the value to DOD of the information derivable from very high resolution photography; and Drs. Brown, Foster, and Flax also strongly supported the present MOL Program for that purpose.

The MOL Program Office believes that the following thoughts were made crystal clear in the briefing/discussions: 1. that DDR&E, DIA, and the Air Force are convinced that very high resolution photography is of significant value to DOD in multi-billion dollar R&D and force structure

DORIAN

Page of pages
Copy † of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

decisions; 2. that DDR&E and the Air Force believe the present MOL Program is the best way to have a VHR photo capability at an early date; 3. that the program has proceeded very deliberately to insure that the program is strictly dollar-paced, and the present status is such that sizable dollars must be invested in FY 70 and FY 71 to avoid gross stretch-out, inefficiency and waste.

B. Bureau of the Budget Subject Issue on MOL Program

Mr. Mayo, Director of the Bureau of the Budget noted to Mr. Packard, in a letter dated February 13, 1969, that the BOB review of major Defense Programs for FY 1970 had identified certain large programs which had a high potential for savings. MOL was one of the programs identified. Mr. Mayo suggested that Mr. Packard review MOL and give consideration to terminating the program.

A meeting was held in Mr. Packard's Office on February 19, 1969 with Mr. Packard, Mr. Mayo, Dr. Flax, General Stewart and others present. ~~Mr. Packard stated he had reviewed MOL and was convinced that the program should be continued.~~ Mr. Packard asked Dr. Flax for the following information (1) financial particulars on a MOL Program that included only the presently-planned three manned flights, with funding and schedule variations; and (2) information on a sustaining program which could minimize FY 1970 funding.

In response to Mr. Packard's request, a memorandum dated February 26, 1969, from Dr. Seamans provided information on the following: present manned/unmanned MOL Program, three manned mission MOL Program, minimum sustaining program, and a program alternative. The recommendation made in the memorandum is as follows:

"This memorandum was prepared jointly by the DDR&E and Air Force Staffs. Dr. Foster and Dr. Flax agree with me that the four manned-mission MOL Program is a more desirable alternative than the three mission program. It would protect, with minimum commitment, until December 1970 a continuing very high resolution operational reconnaissance capability in the 1970's, provide time in which to carefully assess other options, and sustain a minimum cost development program leading to manned or unmanned operational systems.

If this course of action is adopted, I recommend the MOL Program be funded at not less than \$556 million in FY 70."

C. Briefing to Staff Director for the Senate Aeronautical and Space Sciences Committee

On February 6, General Stewart gave an updating program briefing to Mr. James Gehrig, Staff Director for the Senate Aeronautical and Space Sciences Committee, and two of his staff members, Mr. Craig Vorhees and

DORIAN

Page of pages
Copy of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

*After considerable
inconclusive
discussion
on a
resolution
The value of
information
derived
from
photography*

~~TOP SECRET~~

Handle via BYEMAN
Control System

Mr. Bill Parker. Mr. Gehrig requested the briefing in order to advise Senators Anderson and Smith regarding their receiving a similar review at a later date.

D. Briefing to Chief Counsel for the House Armed Services Committee

On February 12, General Stewart gave a program briefing to Mr. John R. Blanford, Chief Counsel for the House Armed Services Committee, and Mr. Earl J. Morgan, a member of the Committee Staff. Mr. Morgan had requested the briefing. Mr. Blanford said he thought Representative Rivers should also receive the briefing and would submit a request through SAFLI.

E. Briefing to Senate Armed Services Committee

At their request, on February 28, General Stewart briefed the following staff members of the Senate Armed Services Committee: James T. Kendall, Edward Braswell, Ben Gilleas, and Colonel E. L. Harper. Mr. William Woodruff, Staff Member, Senate Committee on Appropriations was also present. Mr. Kendall, in requesting the briefing, noted that the Committee was especially interested in the value of the MOL as compared with other unmanned programs.

F. Easter Island Recovery Staging Base Agreement

General Solari of the Chilean Air Force visited the Pentagon on February 10, 1969. General Solari was one of a group of Chilean Air Force Officers with whom the agreement for the use of Easter Island as a recovery staging base, was negotiated in Chile July 1968. The USAF/Chilean Air Force negotiations were completed and the agreement was submitted to the Ministry of Defense (Chile) for approval. To date this approval has not been received. Lt Colonel C. B. Merritt, MOL Program Office, was a member of the negotiating team in Chile, and met with General Solari on February 10, 1969. The status of the agreement was not mentioned to avoid any possible embarrassment to General Solari. The General did state that the Chilean Air Force Easter Island Project Officer has been transferred. This fact coupled with the pending Chilean National elections and possible changes in government prompted the MOL Program Office to request a status report through channels to the U. S. Embassy in Chile.

G. "Combat Harvest" Support Study

"Combat Harvest" is a joint DOD/NASA, three phase evaluation of the suitability of the HH-53 Helicopter as a primary vehicle for manned spacecraft recovery. Phases I and II, which entailed the development and tests of equipment, techniques and procedures, have been completed. Prior to conducting Phase III, which will test the long-range recovery

DORIAN

Page of pages
Copy of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System


airlift capability of the HH-53, NASA has proposed a study to evaluate the feasibility of recovery force models which compare the use of helicopters versus ships, and then develop comparative cost figures for the selected models. The MOL Program is joining DDMS, NASA, and other DOD agencies in the study, and the resultant data from both NASA and MOL force models should have two very useful applications in addition to NASA's immediate purpose: (1) provide more valid force models for the DDMS Five Year Recovery Support Plan, and (2) provide a computer program suitable for evaluating possible future resources (e.g., VTOL vehicles) in recovery force models.

H. Funds

There was no change in the FY 1969 funding status during February. The approved program for FY 1969 is \$515,000,000. As of the end of February, funds in the amount of \$299,408,000 have been released through white channels, \$155,592,000 through black channels, and \$60,000,000 is retained in Headquarters USAF by the Director, MOL. Contractor expenditures against the FY 1969 funds totalled approximately \$252.6 million through January 1969.

I. Program Review Council Meeting

A Program Review Council meeting was held on February 11, 1969. The following principals were in attendance:

Dr. Alexander Flax	General Russell Berg
General James T. Stewart	
General Joseph Bleymaier	Mr. Al Donovan, Aerospace Corporation
General John L. Martin, Jr.	

A summary of the meeting follows:

Financial Status Schedule - A detailed review of the financial position of the program was made and funding plans for the remainder of FY 1969 was reviewed. The schedule for contract negotiations was presented.

Gemini B - Major Gemini B milestones for the next 90 days were reviewed. Work is on schedule; no outstanding problems were reported. The Independent Safety Review Board reviewed the Gemini B dual-gas system status on 27-28 January 1969 in St. Louis. The purpose of the review was to examine future tests of the Gemini B dual-gas system involving human subjects. No significant discrepancies were identified and work is proceeding toward the conduct of the test in late April of this year.

DORIAN

Page of pages
Copy of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

Laboratory Vehicle - A review was made of the milestones for the next 90 days for the laboratory vehicle. No discrepancies were noted and work is on schedule.

Mission Module - A report was made on major mission module milestones for the next 90 days. Some minor adjustments were forecast in these milestones without significant impact.

Status of the General Electric simulation program was reviewed and work is proceeding satisfactorily.

The AVE and AGE optical alignment program was reviewed. The many disadvantages to the General Electric proposed system for optical alignment caused the Systems Office to direct GE to conduct trade-off studies. Three alternatives were identified which would eliminate a great deal of AGE and facilities test time; permit the realignment of the AVE optics and/or replacement of components at almost any point in the ground test and checkout phase; and provide the capability for alignment while in orbit. Two of these alternatives are still under study with the expected decision in early March.

Dr. Flax asked if the Systems Office expected to soon reach the point at which the General Electric/Eastman Kodak Company thermal interface will be completely defined. In reply Dr. Flax was told that this work is scheduled for mid-May completion. Dr. Flax recommended that EKC participate in these tests for the maximum benefit to both parties. Dr. Flax was assured that EKC representatives will be present.

Photographic Payload - The status of the payload and major milestones for the next few months was reviewed. The status of each of the major subsystems was briefly reported. Facilities and test chamber status was discussed with all elements on schedule.

ULE deliveries were reviewed and no problems were identified. Polishing of both the curved mirrors and planos is proceeding very satisfactorily, with the quality of the optical surfaces approaching or meeting specification.

Test Operations - The Systems Office reported on the plan of attack to redirect the software efforts to accommodate the CDC 6600 computers in lieu of the CDC 3800. Initial estimates of the impact of this redirection varied from \$4.5-\$4.9 million.

Optical Performance - An Aerospace Corporation representative presented a very comprehensive review of the factors affecting optical performance and our progress in achieving the milestones to obtain this performance. His approach was to compare the performance prediction budgets against test results and best estimates of performance. He

DORIAN

Page of pages
Copy of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

reviewed the mirror optical quality factor budget, tracking mirror drive gibal rate errors, tracking mirror drive rate errors, vibration smear, smear rate probabilities, and the smear rate budget both in the automatic and manned modes; with the conclusion that the actual camera system performance will be equal to or better than our design specifications.

Contamination - Dr. Williams of Aerospace Corporation reported on the contamination problem covering recent testing of the 22 pound attitude thrusters by Marquardt. The conclusions from these tests indicate the baseline configuration is satisfactory and no contamination can be expected from this source. Further assessment of the 100 pound thrusters of the translation system are not as encouraging and further work is needed in this area.

Another potential source of difficulty involves the vents for ascent outgassing on the aft end of the mission module. It is possible that these vents could allow contaminants to enter the mission module during T-IIIM staging.

Other contaminant sources from orbiting vehicle waste material can be controlled to avoid dumping them overboard during those times that the thermal mask is not covering the camera aperture. Work is still under way to identify and define contamination areas and appropriate fixes.

Fuel Cell Status - Mr. Graff of Aerospace Corporation briefly reported on the entire electrical power system and reviewed power allocation status, which is tracking very well with respect to design specifications. He discussed the advantages of the matrix fuel cell over the bacon design. The Allis Chalmers fuel cells are meeting all expectations with respect to performance, duration and schedule. The Systems Office is carefully following the AAP fuel cell work at Allis Chalmers as critical AAP milestones occur prior to those of MOL. Close coordination is being maintained between the Systems Office, the contractors, and NASA to assure maximum use of common parts, support equipment, and the like. The electrical power area appears to be proceeding very satisfactorily.

IV. FORECAST FOR FUTURE

1. The tempo of Congressional Activity will be on the rise during the next few weeks and we are prepared to furnish briefings, status, and background as needed.

2. We anticipate that Mr. Packard will render a decision soon on program continuity, effort and alignment.

V. DUE DATE NEXT REPORT

The next monthly MOL Program Progress Report will be submitted April 7, 1969.

DORIAN

Page of pages
Copy of copies
SAFSL BYE 68257-69

Handle via BYEMAN
Control System

~~TOP SECRET~~