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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
LOS ANGELES AIR FORCE STATION
Air Force Unit Post Office, Los Angeles, California 90045

REPLY TO ATTN OF: SSK

6 OCT 1964

SUBJECT: Request for Determinations and Findings - Manned Orbiting Laboratory System

TO: Hq AFSC (SCK-3)
Andrews AFB
Wash DC 20331

Hq USAF (AFSPPCA)
Wash DC 20330

IN TURN

1. A Secretarial Determinations and Findings is requested authorizing negotiation of contracts pursuant to 10 U.S.C. 2304(a)(11).

2. This procurement will provide for design studies, associated research, including initial fabrication of selected long lead time items leading to the development of a Manned Orbiting Laboratory System.

3. The supporting information in the attached AFSC Form 111 has been reviewed and determined to be for research and development which is not suitable for advertised procurement. Accordingly, it is recommended the attached Secretarial Determinations and Findings be accomplished.

4. The procurement aspects noted in the Form 111 are concurred in.

FOR THE COMMANDER

Robert E Best

ROBERT E. BEST
Acting Chief
Office of Procurement
& Production

2 Atch
1. D&F (11 cys)
2. AFSC Form 111, No. P-65-1-6399 (6 cys)

If inclosures are withdrawn (or not attached) the classification of this correspondence will be UNCLAS

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"FORGING MILITARY SPACEPOWER"

AFSC MANAGEMENT REPORT (Stamp Security Classification Outside Border of Form)	DATE PREPARED 1964	REPORTS CONTROL SYMBOL

1. TYPE OF REPORT	STATUS REPORT		2. MGT REPORT SEQUENCE NO
☒ ACTION REPORT	☐ REVISION	☐ SIGNIFICANT EVENT	P-65-1-6399
	☒ PROGRESS	☐ TERMINATION	3. PROGRAM ELEMENT 63409404

4. TITLE
Program Management Information in Support of Request for D&F, Manned Orbiting Laboratory Program.

5. PROGRAM STRUCTURE 6399

6. PROJECT NUMBER 632A

7. HQ AFSC RESP OFFICE	8. RESPONSIBLE MGT ORG	9. PROJECT OFFICE	10. PREPARING AGENCY
MSF-1	SSB (SSD)	SSM (SSD)	SSHKM (SSD)

11. COORDINATION SECURED

12. APPLICABLE AREAS

A. ☐ TECHNICAL	B. ☐ TEST	C. ☐ FUNDS	D. ☐ MATERIEL	E. ☐ FACILITIES
F. ☐ MANPOWER	G. ☐ PERSONNEL	H. ☐ TRAINING	I. ☒ CONTRACTS	J. ☐ AIRCRAFT
K. ☐ COMMUNICATIONS	L. ☐ OTHER (Specify)			

NARRATIVE (If more space is required, continue on a plain mat)

This management report is submitted to obtain Air Force approval of the definition and initial development of the Manned Orbiting Laboratory Program.

(A) This effort will provide for design studies to realistically and objectively define the system, associated research, development of firm specifications and other related effort, including development testing and initial fabrication of selected long lead time items for the flight program leading to the development of a Manned Orbiting Laboratory System. The Manned Orbiting Laboratory Program has as its primary objective the determination of man's utility and effectiveness to perform military missions in space.

(i) This effort is part of the program initiated in accordance with the directions of OSD and consistent with the program recommendations approved and forwarded by the Under Secretary of the Air Force on 18 September 1964 to OSD. Pre-definition studies are continuing to insure the optimum application of available technology and hardware in the baseline definition for the development of this system.

(ii) The effort will result in trade-off analysis and determination of optimum total system baseline configuration, design specifications, interface definition and control, schedules, cost and operational effectiveness, and initial design and development of selected components for the MOL flight program.

(iii) The results generated under this coverage will be applied to subsequent Fiscal Year programmed milestone objectives in the Program Acquisition Phase.

(iv) The current level of technology supports the feasibility of this further effort.

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

AFSC FORM DEC 63 111 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

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(v) The proposed effort will be coordinated with all affected Defense agencies and the NASA as determined appropriate.

(B) Service testing is not applicable in this program.

(C) Current estimated dollar amounts of procurement(s) to be placed under this authority will approximate $71.5 million for FY 1965. In accordance with the approval and recommendations of the Under Secretary of the Air Force, an approximate $6 million will be required for immediate obligation. These funds are required to support the necessary actions to protect program options that will be reviewed for final selection in the January 1965 time period. Release and expenditure of the remainder of the funds is predicated on further program review and approval planned for January 1965.

(D) Individual Purchase Requests are not available nor is a breakout of proposed funds allocated to the various contracts listed in paragraph (G) below.

(E) It is planned that all contracts will be placed by 1 April 65. Fixed Price, Fixed Price Incentive and/or Cost-Plus-Incentive-Fee type contracts will be used. The necessary authorization for type of contract will be obtained.

(F) These proposed procurements are for research and development effort for which it is impossible to prepare specifications suitable for formal advertising. The exact method of doing the work cannot be established in advance and must be subject to improvisation and change as the work progresses. The procurements will be awarded on a competitive basis wherever possible.

(G) The proposed procurements are summarized, but not limited to the following:

ITEM	SOLE SOURCE OR COMPETITIVE	NUMBER OF CONTRACTS	SOURCE
MOL System Integration and Laboratory Vehicle	Competitive	One or more	To be determined
Gemini "B"	Sole Source	One	McDonnell Aircraft Corp.
Titan III-C	Sole Source	One	Martin Company
Experiments	Competitive	Eight or more	To be determined
Mission Facilities	Competitive	One or more	To be determined
Mission Control Center	Competitive	One	To be determined

(H) Sole Source procurements will be necessary on some of the planned efforts due to peculiar capability and knowledge possessed by certain contractors and/or large amount of Government investment in equipments constituting major elements in the MOL system.

No initial sole source procurements other than those dictated by the MOL system are planned. No unsolicited proposals have been received relative to the contemplated effort.

(J) This program is planning to utilize existing products from programs such as Titan III and Gemini to the extent possible.

(K) The Air Force intends to obtain rights to all data in the performance of the contracts to be awarded under the authority of this Determinations and Findings.

(L) Previously executed Determinations and Findings (D&F) related to the MOL Program effort is: D&F 64-11c-84, dated 13 April 64.

FOR THE COMMANDER

William D Brady

WILLIAM D. BRADY
Colonel, USAF
System Program Director for MOL

Approved: Hq AFSC

Approved: Hq USAF

Approved: SAFRD

Management Report No. P-65-1-6399
Program Element - 63409404

DEPARTMENT OF THE AIR FORCE
DETERMINATIONS AND FINDINGS
AUTHORITY TO NEGOTIATE CONTRACTS

This procurement will consist of one or more contracts for definition studies, associated research and development, development testing, and fabrication of selected long lead time items for a flight program leading to the development of a Manned Orbiting Laboratory System which will be used to establish man's capability to perform various functions in orbit and to support experimental space projects sponsored by the various military services and Governmental agencies.

I hereby find that the proposed contracts are for the procurement of design studies to realistically and objectively define the system, associated research and development of firm specifications and other related effort, including development test and the initial fabrication of selected long lead time items, leading to and including the initial development of a Manned Orbiting Laboratory System.

I hereby determine that the proposed contracts are for definition studies, research, development, and test work, and for the making or furnishing of property or material for the development, experiment, and testing, required in the interest of national defense.

I further determine that the use of formal advertising would be impractical because it is not possible to draft technical specifications which would be detailed and specific to the extent necessary to permit the use of the advertising method. It is understood, however, that this determinations and findings will not be used to avoid procurement by formal advertising for items which can be procured by that method without impairing the program.

Upon the basis of the determinations and findings above, I hereby authorize the negotiation of contracts for this procurement pursuant to 10 U. S. C. 2304(a)(11). This class determination shall remain in effect until 30 June 1965.

Management Report No. P-65-1-6399
Program Element - 63409404

MEMORANDUM FOR RECORD 10 November 1964

SUBJECT: MOL FY 66 Budget

1. On 4 November 1964 DDR&E forwarded a memo to SAF subject: Proposed R&D Program for FY 66" which transmitted a Top Secret Memo for the President subject: "Fy 1966 Budget Research and Development". Dr. Brown's memo requested comments on the proposed memo to the President. The proposed memo to the President presented the recommended FY 66 DOD program for Research and Development.

2. The following points pertaining to the MOL Program were made in the proposed memo to the President:

a. The MOL program is a major element in the DOD space effort. The defense communication satellite program is another significant activity. Also, NASA/DOD discussions to establish the roles of the TIIIC and Saturn IB will have an impact.

b. The DOD Space RDT&E budget for FY 66 will be 1.46 billion dollars. This represents an increase of 100 million dollars over FY 65 due to increases in the spacial activities area. Fifty percent of this budget is for exploratory and advanced development and will build the technology and experience needed to develop and exploit space systems. It was pointed out that lead time for Manned Military space operations may be as much as 10 years.

c. The purpose of the MOL program was outlined. The requirement to conduct experiments to assess the utility of man the need for feasibility and effectiveness testing of developmented subsystems and scientific experiments were specified. Within the experiments land and ocean surveillance were indicated as primary. Others mentioned included [redacted] autonomous navigation, docking and resupply.

d. NASA has been invited to participate in the MOL program and will fund their own experiments.

e. MOL Proposed Project Definition Phase is under review. Air Force will be in a position to make the "RFP" for Project Definition Phase in January 1965.

f. The first major MOL funding increment of 150 million dollars in FY 66 will lead to design, development, and construction of flight hardware and test range facilities. The funding by FY was presented as follows:

FY 64 - 10 million dollars
FY 65 - 38 million dollars
FY 66 - 150 million dollars
Thru FY 70 - 990 million dollars

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g. Start will have 35 million dollars in FY 66.

h. First MOL Manned Flight will take place by the end of Calendar Year 1968.

LOWELL B. SMITH
Colonel, USAF
Ofc of Assistant for Manned
Orbiting Laboratory
DCS/Research and Development

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OFFICE OF THE DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
WASHINGTON 25, D.C. 20 October 1964

MEMORANDUM FOR COL. KENNETH W. SCHULTZ, CHAIRMAN,
NATIONAL SPACE STATION PLANNING SUB-PANEL,
MSP/AACB

SUBJECT: Comments on NASA FY 1965 Space Station Studies

As we found last fall in our review of the FY 1964 packet of studies, it is very hard to accept a blanket sign-off on any of these abbreviated task descriptions. It is somewhat helpful to have the testimony of NASA as to the general intent of their previous year's efforts as a basis for their stated need for FY 1965 studies. Unfortunately, I have as many concerns about their stated claims of previous studies as I do about their FY 1965 proposed work. Following, then, are some comments which apply to previous work and affect many of their proposed studies. I will then comment on individual studies. I would note in advance that we desire to make the response to this coordination quite detailed and specific in its critique of objectives and technique.

General

1. NASA may be making claims for considering a national space station program, but there is nothing in their prior work or proposed work which shows a desire to consider using hardware other than that already in the NASA inventory, or that which is their own pet concept. For example, they frequently refer to the virtues of using the Apollo hardware and the SATURN class vehicles, whereas they no where even hint at use of TITAN III class of boosters.

2. Somewhere in their development of a base line program, they have hypothesized that polar orbits and synchronous orbits may be a good thing to have some day. Without any indication of where to find the criteria for wanting to go to polar orbit or synchronous orbit, they allow these new parameters to leap into several of their new studies. From a standpoint of space station design, launch facility requirements, and range support and retrieval, I would expect some rather important changes would have to take place in our whole thinking of how to go about a national space station. I see no evidence of the desirability of such orbits, and feel NASA is making a dangerous presumption about a capability without any support of the need or impacts which that hypothesis creates.

3. NASA's FY 1965 program is being introduced by a development of how they have arrived at a base line program; and DOD is, in effect, being asked to give credence to NASA's base line program when they concur in NASA's FY 1965 studies. I believe we have many reasons for not accepting the base line program, and should in fact use our NSSPS to consider the concept of a base line study program to which both DOD and NASA could give support. For example, their base line program has as a key ingredient the presumption that the national space station would quickly evolve into a five to nine man crew and 8,000 cubic feet. I just do not feel that we can give such a large-sized station that much credence at this early date, and we should be forceful in urging NASA to put some significant attention on more modest space station concepts.

4. In connection with a previous concern, I expect that NASA has allowed themselves to continue thinking of very large stations, because there is hidden in their reasoning this concept of large "beneficial applications", wherein some segments of our government and community are going to find great pleasure in having large permanent stations in earth orbit. As we are finding in many of our other elements of the space program, both manned and unmanned, the attractions of space are not quite as glamorous as earlier promoters would have thought. The use of weather satellites has been heavily constrained by the user agency not caring to pay for the expensive NIMBUS configuration. The practicalities of agency funding have limited severely our geodesy program. A recent attempt by NASA to promote a grandiose navigation and traffic control system is running into very hard counter arguments, both due to economics and to competing earth-based systems which can achieve similar missions just as well. I think it is very presumptive for NASA to claim that there are "beneficial applications" in the areas of manned meteorology, surface geology, agricultural analyses and the like. I feel they should be requested to put more attention on trade-off studies which would clearly identify whether any such applications are truly beneficial; or, in effect, whether they cannot better be done by either unmanned satellites or earth-based systems. The argument of the chicken and egg approach which NASA presents is not an excuse to avoid developing critical trade-off studies. There is every evidence that NASA has been trapped by having now two years of vehicle capability work under their belts, and are being supported by an industry which is obviously biased to now prove that that hardware capability should be implemented. It seems that NASA should be asked to step aside from the hardware capability for a while and question what the real uses of a space station would be.

5. I think there is general agreement at top management levels that a permanent space station program would not be started for at least two to three years. This is not only because of fiscal constraints, but because the needs have not been reasonably defined and the preferred approach has not been established. I think there is also a growing acceptance that the MOL, the GEMINI and the APOLLO flights are going to provide very important data from which to later decide what kind of space station is needed. It therefore concerns me that none of the FY 1965 studies which NASA shows are focusing attention on the near-term, crucial experiments which they are planning to include in these three segments of the short-duration laboratory programs. Until we get further direction from the AACB and the Manned Spaceflight Panel, I feel our sub-panel should challenge NASA as to why such studies are not included within our coordination responsibilities. There seems to be evidence that NASA is coordinating only on those studies coming out of the advanced planning office of the Manned Space-Flight Panel, whereas equal and significant experiments and studies are being done under Bisplinghoff and some under Newell. While a later decision may put these near-term experiments in a different management relationship, I feel we should request at this time that this sub-panel have the full benefit of NASA's plans for near-term experiments in the same manner in which we have recently sent them statements of the objectives of our prime MOL experiments. Specific pressure should be applied to see how they are addressing the question of the relative benefits of putting their experiments aboard MOL versus APOLLO X.

6. It appears that most of NASA's planning studies are focused on justifying the merits of large space stations, and we hear repeated statements that their past hardware study contracts have confirmed that all of the technologies are available to build the large space station. This may be true for basic structure and life support sub-systems for the labs; but it would appear that much can still be gained by concentrating on the experiments and other activities which the crew will be expected to perform, in order to identify important research and technology investigations which should proceed before a commitment is made to go ahead with a large station. These would include simulations of various experiments beyond the human factors work which they propose, breadboarding of experimental packages to confirm their operation and maintenance concept, and identification of key experiments which could be done in ground simulators, aircraft, or MOL and/or APOLLO X, in order to define design criteria for the station or to establish whether the experiment or functions needs to be done in support thereof.

Specific Comments

Task 981-10-10-13: Orbital Research Laboratory Experiment Program Definition

This abstract is so general as to leave considerable doubt as to its value. It claims a go-ahead in January 1965, whereas several of the major FY 1964 studies which would provide key inputs to this effort are not to be completed until May - July 1965. This concern involves a number of the other studies as well. The chicken and egg argument which NASA promotes seems here to be synonymous with a philosophy of racing pell mell toward lowest objectives and goals with little order to the phasing of the various efforts.

For example, this abstract states that one of its key activities will be to examine the compatibility of the over-all experiment program with the space station base line program. This again reflects to me the presumption by NASA that a base line program is no longer a variable in the problem; they are merely trying to find whatever collection of experiments can be invented to fill it up. While they also include in their abstract statements that they will examine desirable changes to the base line program and the impact of the experiments on the space station design, there is no evidence here or in other studies that they have any intention of keeping the space station hardware concepts as a truly open parameter.

I recommend that we non-concur in this abstract, that its initiation date be shifted to June 1965, and that we insist on a detailed work statement before concurrence.

Task 981-10-10-17: Space Orbital Research Laboratory Experiment System Definition

Comments on the previous task apply here equally well. The time phasing is even more questionable since they have just started a series of contracts in FY 1964, under this same task number, which will not be completed until December 1965. These FY 1964 studies are valuable attempts to identify details of specific experiments in spectral photography, [redacted] and radar responses, and "space-derived earth atlas". It would appear that the abstract given to us now is so broad as to be no different than what was shown for FY 1964.

I recommend that we non-concur, and ask for initiation date not earlier than mid-1965, and request detailed work statements.

Task 981-10-10-18: Simulation of Manned Earth Orbital Research Laboratory Mission

This has the same task number as the FY 1964 study on mission simulation which will not not be completed until April 1965. It is not clear from the statement of objectives how this task is significantly different from the existing contract, except that it looks to a longer duration crew simulation. This may be sufficient cause to proceed while the existing contract is under way, but there is a definite concern as to the complete emphasis on pure human factors and physiology stated in the objectives. I urge we ask for testimony as to what credible experiments, maintenance functions, and crew occupation are planned to make the 100-day simulation meaningful. We should also ask why the effort cannot also include several subcategories where shorter term simulations are run for two to four weeks, and if that would influence possible use of MOL or APOLLO X.

Task 981-10-10-10: Single Module Space Station Configuration (MORL Phase II B)

This study, as described by its objectives, seems quite premature and it is also questioned as to why it should be continued as a sole source effort. With two years and $2 million of study effort already completed on MORL, it would seem timely to open up to the industry the opportunity for introducing new and unique ideas of how to utilize such a space station concept. It is not clear that this particular study needs to be done at all. Instead, the results of MORL Phase II A might be handed over to a number of the other contractors looking at detailed experiment implementation and ask them to use the MORL as a candidate model for realistic design criteria for grouping of experiments, maintenance of experiments, and crew functions relative to these experiments.

On the basis of the rather broad statement of objectives given, I recommend that we non-concur, and request NASA to identify why the study should be done and to be more specific in relating what is to be learned here, compared with that work being done in other studies.

Task 981-10-10-11: Multi-Module Space Station Configuration Study

Again this extension of previous work presumes the base line model as a frozen progression of space station hardware. The objectives given are very conflicting. On one hand it says that the study is to assure that the LORL satisfies the base line program objectives and fully exploits the MORL hardware as an element of the LORL. It further states that the effort will concentrate on the interconnecting elements and the structural interface with SATURN V. It is simply felt that this is a premature hardware exercise and that we can predict the results in advance; that is, Lockheed or any other contractor can surely find ways of achieving a hardware solution to this problem. If NASA really intends to include some work on "compatibility with the station utilizations identified and explored by related studies," then we should ask them to put major attention on this task and not worry too much about the detailed hardware aspects.

I recommend non-concurrence, without detailed work statement.

Time has run out in submitting these comments. The comments on the remaining five studies will be provided later.

Starr J. Colby
Assistant Director (Space Technology)