MEMORANDUM FOR COLONEL WALLING

SUBJECT: Program Review, MOL Systems Office, 2 April 1966

The meeting was officially called to order when General Schriever arrived at 1000. The Executive Session had been held from 0830 - 1000 with the Generals and key Aerospace personnel in attendance. Some of the key personnel present were: Generals Schriever, Evans, Berg, Funk, Martin and Cooper, Dr. Getting, Dr. Donovan, Dr. Leonard, Dr. Williams and others including Frank Ross of Dr. Flax's office.

The first item on the agenda was a Weights Review conducted by Mr. Weeks, Mr. Moss and Mr. Strong of Aerospace. The design objective for MOL was stated to be:

> 32,600 pounds, 80/155 Nautical Mile Ephemeris, 80° inclination.

The 32,600 pounds is made up of a weight budget of 28,561 pounds plus 4,010 contingency to make a grand total of 32,571 (32,600) pounds. The design weight goals have been apportioned as follows:

		Contingency Weight	
Crew Equipment	413 lbs.	+ 80 lbs. =	493 lbs.
Gemini plus Crew	6,160 lbs.	+ 290 lbs. =	6,450 lbs.
Mission Module	8,433 lbs.	+1,700 lbs. =	10,133 lbs.
Laboratory Module	13,555 lbs.	+1,940 lbs. =	15,495 lbs.
Total	28,561 lbs.	+4,010 lbs. =	32,571 lbs.

At the present time the program people associated with the laboratory module are driving hard to reduce their weight by 1,000 lbs. They were weighing 15,456; they presently weigh 14,502 and their objective is 13,555 pounds. (The weight of the mission module structure is included in the weight budget charged to the Laboratory Module)

The history of the weight problem in the mission module is as follows:

September 1965	-	6,160 lbs
December 1965	-	6,675 lbs
January 1966	-	8,910 lbs
February 1966	-	9,360 lbs
April 2 1966	-	9,178 lbs
Aerospace Target	-	8,433 lbs

DATA RETRIEVAL - Mr. Stan Strong of Aerospace introduced this subject and Bob Brandel gave the presentation. The same presentation had been given to Dr. Flax on the 28th of March. Mr. Strong stated he believed Dr. Flax generally supported the positions taken on this effort.

The points that were made on Readout were as follows:

1. Security - A secure link was believed essential for any data readout. The two ways to achieve this security were:

   a. A 3' diameter directional antenna on the MOL vehicle.

   b. Standard 20mb (SGLS) transmitter plus encrypting.

The latter method was favored due to the desire to delete any requirement for an extra antenna on the MOL vehicle. This system includes the CBS scanner, modified, the [redacted] which is presently under contract, and the 20 mb (SGLS) transmitter. The three reasons given for requiring security were:

1. Protect the sensitivity of man's role in reconnaissance from space.

2. Protect the knowledge of the HRO capability.

3. Protect the knowledge of the users interest in specific tests.

SYSTEM RESPONSIBILITY - Another major issue associated with the data readout problem was the need for early assignment for system responsibility to a specific contractor.

FILM RETURN - For data retrieval in the manned MOL, Dr. Flax has asked that provisions be made for a single 33 inch re-entry vehicle to dump some film after a week's operation. Provisions must also be made to include a possible second re-entry vehicle. The GEMINI is being designed to bring back three separate cans containing rolls of film weighing 60 pounds each. Also to be included is a small container for 30-50 pounds of secondary data, such as IR, color, film packs and processed film, previously readout over the data readout link.

CAMERAS - The present Eastman Kodak work statement calls for two camers. Because of space limitations in the laboratory, it is intended to design the system with only one camera with a platen capable of accepting alternate films and filters. The objective would be to permit the astronaut to change film in the same way that film packs are changed on the backs of Speed Graphics. The MOL Program Office is also considering the use of 5-inch instead of 9-inch film for the data readout photography. This is possible in the manned system due to the fact that man will be able to center the target and all that will be lost is the inferior data at the edges of the 9-inch diameter lens.

UNMANNED SYSTEM - The design has been selected for this system. It will include six re-entry vehicles and will be designed for an operational life of 40 days.

PROGRAM PLANNING - Dr. Leonard and Dr. Williams discussed in great detail the need for design and development of a "fat" TITAN- an improved, Large Diameter Core (LDC). The strength of their arguments were predicated on the eventual need for long duration MOL systems, capable of becoming cost effective through rendezvous techniques. The whole basis of their argument rested on the need to bring cost of manned reconnaissance operation down from an estimated high of $3.1 million per day (80 N.M. perigee) and $4.5 million per day (70 N.M. perigee) to a figure close to the estimated cost of $2.0 million per day (70 N.M. perigee), unmanned.

The cost of this LDC development was estimated by Dr. William to be $50.0 million from go-ahead. He stated that Phase IB should be initiated as soon as possible to achieve for a test launch of the first LDC in 1970.

General Schriever stated that the requirement for extended duration of man in orbit for the period of time to make initiation of this development attractive required some detailed study. He stated he would meet with Aerospace on 5 April to attempt to understand more completely the proposal being made by Aerospace.

ROLES & RESPONSIBILITIES - Colonel Knolle gave a short presentation on this subject. He stated there was now firm agreement on the factory-to-pad issue. Douglas would fabricate and ship the mission module shell to GE. GE, with the aid of an EKC simulator, would install its 3,000 pounds of equipment and put the doors on the shell. GE would then remove the EK simulator and ship the mission

module to EKC. There, Eastman would install and test the HRO and ship to Douglas, 20 weeks after receipt of the shell from GE. Douglas would then mate the Lab Vehicle and Mission Module, perform system tests and ship to the WTR pad for launch.

SIGNED

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