From the Desk of the
Director of Professional Services

Date:
23 Nov 60
(28 Dec 60)
ALJ

Memo: ~~Gen Culter~~

AFCSG-1 JM
~~AFCSG-20~~ LAS
AFCSG-30 WK

For information and return, please.

Par 4. NASA will have to fund for all resident participation unless CSG-1 can finance - no tng $ are available. LAS

(CSG-10)

It was previously agreed NASA would fund TDY
$ are not in '61 budget for this
ALJ 20 Dec '60

Brigadier General A. L. Jennings, USAF, MC

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D.C.

REPLY TO
ATTN OF: AFCSG-11

SUBJECT: Trip Report--Second Training Session for Aeromedical Monitors for Project Mercury

10 NOV 1960

TO: AFCSG-10

1. The undersigned and Major Willard R. Hawkins departed Washington on 12 October, via private automobile, arriving in Johnsville at 1130. We departed Johnsville on 14 October, arriving in Washington that evening.

2. PURPOSE. The purpose of this visit was participation in the second training session for aeromedical monitors involving observation and actual monitoring of the astronauts during their centrifuge runs at the Naval Aeromedical Acceleration Laboratory, Johnsville, Pennsylvania.

3. KEY PEOPLE CONTACTED. Lt Colonel Bill Douglas and Captain Bill Augerson (USA) were the principal officers conducting this training. Lt Bernard Tucci, USAF, MSC, is now on Colonel Knauf's staff at Patrick and with Major Horne has the prime responsibility of the administration for the various teams participating in Project Mercury.

4. The attached outline is a fairly formal presentation of the material covered and gives somewhat of a false impression as to the conduct of this training session. In actuality the various NASA, Navy, Air Force, and Army personnel involved conducted this training in an extremely informal manner. We were first brought up-to-date on the project by Captain Augerson. He stated that the new MSC group at Patrick will attempt to handle all administration for the monitoring program. They will be responsible for the distribution of various documents, manuals, etc, which are pertinent to the monitors' duties. There has been some difficulty in clearing this material through NASA and it is hoped that this method will short-circuit this bottleneck. Orders requests will be issued from this group and if an individual monitor requests or desires a change in dates he may arrange this through Major Horne directly. If he is to miss an entire training session for some reason, however, he should contact either Lt Colonel Stanley White or Lt Colonel William Douglas of the Space Task Group and discuss this matter with them. I emphasized the necessity of more frequent and pointed information as to training periods being disseminated to the various monitors. There is an acute need for a monthly newsletter and this is particularly so in the case of the overseas monitors. The first such letter has been received since this training period. It is unfortunate, however, that this letter states that the overseas monitors are to be returned in late November and held for a period of six weeks which would be through the Christmas holidays. We have complained to Colonel Knauf and Major Horne concerning this arrangement and have had letters from the overseas monitors also registering their complaints. We have been assured by Colonel Knauf that no family will be separated during the Christmas period. I also brought up the question of

the residents' participation in the training. Hq USAF (SGO) used training funds to pay for the initial two week training session in June, which was attended by the six aviation medicine residents. In the trip report concerning that training I emphasized the importance of having these residents continue in the training program. The current NASA view is that the residents will be used in the training program and probably will be used in the actual operations. However, there is still a question of funding and the offhand comment at that time was that NASA would pay for any training which involved actual monitoring by the residents but other training sessions would be funded by USAF. We must have a clear statement of intention and policy here and a letter will be directed to NASA requesting such clarification.

5. This training session involved the simulation of Redstone launch and mission on the centrifuge. Each astronaut was given six to seven dynamic runs and several static runs. The program was arranged so that even retro-rocket firing and chute opening shock accelerations were simulated. A part of the life support system was also utilized in this training in order to test such items as the suit, emergency oxygen, lithium hydroxide, heat exchangers, regulators, etc, under the accelerative loads anticipated. A modification was made whereby the medical monitor could cut in emergency oxygen supply. The data acquisition program for Project Mercury has been expanded with the addition of Major C. B. Jackson, USAF, MC, as Bill Douglas' assistant, and a civilian physician, Pat Laughlin. A respiratory thermister is being used as a means of measuring respiration and the electrocardiograph electrodes have been changed to two pair, one pair located over the sternum and the other across the chest--one under the right axilla and one low in the left axilla. The astronauts have been tattooed for proper electrode positioning by whoever applies them. New couches and new suits have also been delivered and were utilized in these runs. We did see a film outlining some of the activities and studies carried on at the Naval Acceleration Laboratory. The submersion study, previously reported by Beckman, was again reported. Certain environmental system changes have been made. The capsule will maintain 9 p.s.i. through the high g loading of launch and then bleed to 5 p.s.i. after the Atlas acceleration peak. The 28 hour run has just been completed in this system and it functioned well. There had been previously some minor difficulties in a decline in oxygen partial pressure due to a leak in the line. There were also problems with a fan burning out in less than 50 hours of operating life. There is still a postlanding ventilation problem. A schedule for Project Mercury was given which is, of course, tentative but may be of some value for planning purposes. A copy of the schedule (classified) is available in my office.

6. The training schedule anticipated for monitors was given as follows:

a. There will be a session at the Aircrew Equipment Laboratory in Philadelphia in late November or December. The astronauts will be monitored in the environmental system trainer which is a capsule identical to the actual capsule with the entire functioning life support system. The

astronauts will be monitored with this capsule placed in an altitude chamber. The emergency procedures may be checked in detail. This training is anticipated to last three days.

b. There will be in December a session on electrocardiography given at the School of Aviation Medicine by Dr. Lawrence E. Lamb, and a trip to Corpus Christi in groups of six or eight will be included in this session. It is anticipated that this session will last four to five days.

c. Procedural training will begin sometime around the first of the year and will be started at Langley lasting for three to four days. At that time the monitors will work with the entire team.

d. There will be a bioflight after January and at this time it is anticipated that the monitors will be brought to Langley and then to Canaveral for one to two weeks, at which time they will be updated on the project and do procedural training. Prior to deployment to their various monitoring stations there will be a session at Langley and the Cape which will include a briefing on the objectives, the individual astronaut information including tapes, etc, the research mission involved, and any diplomatic and administrative briefing which is necessary.

7. Dr. Hawkins and I spent our three days monitoring the various astronauts through static and dynamic runs in the Redstone profile and thus checking the monitoring equipment. We also participated in preparing the astronaut for these runs. This was a valuable session, but we still have the feeling that there is some lack of over-all direction in that it is very difficult to get definite answers and there still seems to be a lack of sufficient preplanning time. The NASA Space Task Group staff are very earnest in their desire to assure that all of the monitors are as adequately informed about the program as they are, but the method of doing this informing still seems to be in question.

Charles A. Berry

CHARLES A. BERRY
Lt Colonel, USAF, MC

1 Atch
Outline

TENTATIVE

TRAINING OUTLINE - AEROMEDICAL MONITORS

CYCLE TO BEGIN ON OCTOBER 3, 1960

DAY I

A. CHECK IN, GET BADGE, OUTLINES, FORMS.

B. BRIEFING ON NEXT 2-½ DAYS - STG OR AMAL MEDICAL PERSONNEL.

C. ORIENTATION OF AEROMEDICAL MONITORS WITH AMAL FACILITIES - - AMAL OR STG PERSONNEL.

1. GREETING.

2. DESCRIPTION - MODEL - AMAL PERSONNEL

3. FILM ON CENTRIFUGE OPERATION.

4. REVIEW OF ACCELERATION PHYSIOLOGY.

A. TOLERANCE

B. CARDIOVASCULAR CONSIDERATIONS - DR. DEFORREST

C. RESPIRATORY CONSIDERATIONS - DR. BECKMAN

D. VISION AND CNS CONSIDERATIONS - DR. BECKMAN

5. FILM X-15 SIMULATION
FILM OTTO GAUER ET. AL. ANIMAL CINERADIOGRAPHY

6. BRIEF REPORTS OF PROGRESS.

A. WATER IMMERSION - ACCELERATION STUDIES
STG - AMAL - DR. BECKMAN OR DR. AUGERSON OR DR. CHAMBERS

B. ALTITUDE -ACCELERATION - DR. AUGERSON OR DR. BECKMAN OR MR. PESMAN

C. IMPACT - MR. PESMAN

7. ECS UPDATING - MR. SCHLER

8. RECOVERY AND OPERATIONS UPDATING - DR. AUGERSON/DR. DOUGLAS/DR. JACKSON

9. MERCURY STATUS FILM.

DAY 11

MONITOR, 1

A. ASSIST IN PREPARATION OF 1ST PILOT, NATIONAL INSTITUTE OF HEALTH FILL IN, AND OBSERVE SENSOR INSTALLATION.

B. OBSERVE 1ST RUN FROM LOADING PLATFORM AREA (TV). OBSERVE REMOVAL OF ASTRONAUT.

C. ASSIST IN ADMINISTRATION OF PRE-POST FLIGHT PULMONARY FUNCTION STUDIES - 1ST PILOT.

D. OBSERVE DEBRIEFING OF 1ST PILOT AND HELP IN POST FLIGHT MEDICAL EXAM.

E. OBSERVE MONITOR DISPLAY OF 2ND RUN.

F. PARTICIPATE IN DATA EVALUATION, END OF DAY.

MONITOR 2

A. OBSERVE MONITOR DISPLAY DURING 1ST RUN.

B. ASSIST IN PREPARATION OF 2ND PILOT, ETC. AS 1 ABOVE.

MONITOR 3

A. PARTICIPATE IN CHECKOUT OF MONITOR EQUIPMENT.

B. ASSIST IN PLOTTING MONITOR OBTAINED DATA.

C. OBSERVE AND ASSIST IN MONITORING BOTH RUNS.

D. OBSERVE DEBRIEFING OF 1ST PILOT AND HELP IN POST FLIGHT MEDICAL EXAM.

ALL MONITORS TO VIEW ADDITIONAL TAPES OF INTEREST FROM THIS AND OTHER MERCURY PROGRAMS, REVIEW EARLY PROCEDURES 4:30 - 5:45.

DAY III

MONITOR 1 - ASSIST IN MONITORING RUN NO. 1

MONITOR 2 - ASSIST IN MONITORING RUN NO. 2

MONITOR 3 - ASSIST IN PREPARING PILOT NO. 1, ETC. AS ON PREVIOUS DAY.

SPARE OR FREE TIME - (A) DEBRIEF FORM FILLED OUT (B) ASSIST IN BRIEFING NEXT ECHELON OF MONITORS.

DEPART - EVENING.