

COR 0133
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29 August 1958

MB

MEMORANDUM FOR: Special Assistant to the Director
for Planning and Development

SUBJECT: Project CORONA

1. The attached trip report is forwarded for your information and any action you deem necessary. Your attention is specifically invited to paragraphs 2b and 5a.

2. With reference to my memorandum of 29 July (COR/0061) and your reply thereto, it is recommended that we now proceed to lay formal requirements for weather studies. In this regard, it is recommended that [redacted] be briefed on Project CORONA and the required tasks be laid on AWS through him.

3. [redacted] will observe the next firing at Cape Canaveral on approximately 12 September. The undersigned will observe the firing following the one on 12 September. In order for both of us to be thoroughly familiar with missile launchings we will each observe a minimum of two launchings as soon as it can be arranged.

[redacted]
Colonel USAF
Director of Operations

Att: COR 0132, Trip Report

CFQ:bm

- 1 - Addressee
- 2 - Dep Dir, DPS
- 3 - D/Ops, DPS
- 4 - Dir D&P, DPS
- 5 - Kiefer
- 6 - SO, DPS
- 7 - Cover, DPS
- 8 - Dir Mat, DPS

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29 August 1958

MEMORANDUM FOR THE RECORD

SUBJECT: Trip Report (CORONA Progress Meeting)

1. The undersigned, in company with other members of the Headquarters Staff, attended the monthly progress meeting on CORONA. The trip was extended to include familiarization visits to the Lockheed Sunnyvale Plant, the Lockheed (Stanford) Research Site, Lockheed Missile Test Site near Santa Cruz, and finally, to Camp Cook (now known as Vandenburg Air Force Base).

a. On the morning of 20 August, the progress meeting on development of the CORONA payload package was held at the Lockheed leased site at Hiller Aircraft, Palo Alto. At this meeting, the Lockheed Project Engineer for CORONA, Mr. Jim Plumber, presented the Lockheed schedule and projected completion dates of the various systems and sub-systems involved. He was followed by Mr. Bernie Marcus, of ITEK, and finally, the representative from General Electric. Although throughout these briefings there were indications of considerable design difficulties, all contractors were quite optimistic that all difficulties could be overcome in time to meet the launch schedule. A mock-up of the CORONA payload package was on display and was very helpful to show how the various components are fitted into the payload package. All contractor representatives were confident that they could stay within the weight allowance allocated and which presently stands at 392 pounds.

b. The morning of 21 August was devoted to the progress report of the WS 117-L program. Due to seating limitation, only three of the Headquarters party could be accommodated.

c. On the afternoon of 21 August, we visited the research facilities at Palo Alto where we looked over the WS 117-L vehicle and pertinent facilities at that location. We also visited the large Lockheed facility at Sunnyvale, where most production will be done. At Sunnyvale, Lockheed is installing an environmental test chamber which should be operational within the next couple of weeks.

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d. We next went to the Lockheed Test Site near Santa Cruz. It is at an extremely remote site located in very rough country overlooking the Pacific Ocean. This site is designed for static testing and check-out.

e. On 22 August we traveled to Vandenburg AFB to look over the facilities that will be used to fire our vehicle. The launch pads are practically complete and should accommodate the firing schedule as presently laid down. There is some rehabilitation and modification required to some buildings that Lockheed is to use, but here again (providing the work is started soon) this should not cause any program slippage.

f. Certain technical, logistical, contractual and security items were discussed and will presumably be enlarged upon by representatives of those sections who were present.

2. Operational control procedures between Project Headquarters and the Control Center at Palo Alto were discussed in some detail with Col. Sheppard from EMD and Lt. Col. Matheson, who is the newly assigned commander of the Palo Alto Control Center.

a. The Palo Alto Control Center will have operational control of all firings at Vandenburg and will be responsible for coordination of all activities concerned during the countdown, while in orbit and for triggering all facets of recovery. Any operational control procedures, and/or directives which emanate from Project Headquarters regarding launch schedules, delays or cancellations must be transmitted to the Palo Alto Control Center for compliance, with possibly an info copy to EMD. This will require establishment of a Project communications link at Palo Alto which should be operational on approximately 1 March 1959, providing the present firing schedule remains valid.

b. Col. Sheppard stated that weather and atmospheric condition forecast requirements for launch, recovery and monitoring of orbit have been placed on the proper agencies. This is a requirement common to all satellite launchings and will be common to all launchings from Vandenburg. However, he has not placed a requirement for cloud cover forecasting or climatological studies for the target areas, as he had been given to understand that this could be provided by Project Headquarters. It is emphasized that the various weather factors involved will make timing of launch a much more difficult decision than presently applies to CHALICE operations, even though almost the same set of conditions must be considered. Due to the relatively more critical effect that launch and recovery area weather will have on the complete success of a CORONA sortie, it is apparent that the period during which all the various factors will be favorable will be considerably less frequent.

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c. Regarding operational control procedures between the Palo Alto control Center or BMD and Project Headquarters, it had been tentatively agreed that Col. Sheppard for BMD and the Operations Section of Project Headquarters would initially prepare separate proposals. After this, there will be a meeting between Col. Sheppard and Operations to resolve any differences as may effect one activity or the other. Offhand, it is expected that the operational control messages which will emanate from Headquarters will be less numerous and in less detail than the present [] series.

d. Arrangements are being made with the Air Force and the Navy for physical recovery of the exposed film in an area approximately 750 miles southwest of Hawaii. Arrangements regarding handling and delivery of the exposed film from the recovering unit to the processing site must be worked out. As the recovered capsule with the exposed unprocessed take will probably be delivered to the processor without opening, its size may dictate that it come back by military air. However the technicalities involved should be resolved with Lockheed and ITEX.

3. Col. Sheppard mentioned on several occasions his opinion that Project Headquarters should have some one individual become thoroughly familiar with launchings and the difficulties which occur during countdown. He felt that this individual should witness at least two launchings from Cape Canaveral and the first one or two launchings from Vandenburg. He stated his opinion as being based on the fact that there are usually numerous technical difficulties which occur during countdown, but are usually correctable, sometimes at a calculated risk. He felt that with this person being aware of the difficulties which do arise during countdown and with the calculated risks which are introduced by unproven corrections, that this individual will be in a better position to properly advise Project Headquarters regarding the probability of the successful launch, orbit and recovery. His main concern in this respect was that during countdown and in the face of what appears to be serious difficulties that a launching would not prematurely be cancelled.

4. As presently planned, the reconnaissance satellite will have an orbit time of 88 minutes. In order to obtain maximum terrain coverage of the USSR, Lockheed is desiring to launch on a 163° orbit. During one day's operation, the vehicle will make seven photographic orbits over the USSR. The perigee of the orbit is expected to be approximately 140 miles over the target area. This will afford an approximate 280 mile photographic strip on each orbit. This will give photographic coverage of approximately one third of the target

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area each day as succeeding orbits will be approximately 800 miles apart at 50° north latitude. There is some question as to whether range safety will permit a 163° launching at Vandenburg as this brings the launching close to the populated areas of southern California. If the 163° launching is not permissible, it is intended that it be a 180° launching. This compromise would reduce the photographic coverage to some degree, the exact amount of which has not been calculated at this time.

5. In order to resolve the various operational aspects involved, the following matters should be dealt with as soon as possible.

a. The formal requirement should be laid on AWS to produce climatological cloud cover studies of the USSR. This study should be directed toward determination of the incidence when it can be expected the greatest percentage of the USSR would be less than 25% cloud covered at maximum sun angle time. The results of these studies can be used as a general guide for determining what months of the year are most favorable for photography, both with respect to cloud cover as well as acceptable sun angle. This requirement can be laid on AWS as a requirement from CHALICE Headquarters. This study could serve as a basis for possibly revising the present firing schedule which runs consecutively from March through November 1959.

b. Operational control procedures should be developed between EMD, Palo Alto control Center and Project Headquarters. A draft of these procedures and message formats are in work and will be coordinated with Col. Sheppard and I/C Matheson.

c. Communications link should be established in the Palo Alto control center to be operational approximately two weeks prior to the first scheduled launching.

d. A Project policy should be developed setting forth the minimum amount of acceptable photography which would be sufficient to justify the satellite launching. In this respect, a chart showing predicted orbit paths over the USSR is being drawn up. These paths will be projected over the present target map to portray the number and relative importance of targets which will fall within the predicted photographic strips. When received, the climatological cloud cover study can further be applied to this to give a general idea of approximately how many targets can be covered on a given sortie, using both a one and a two day in-orbit time.

[Redacted]
Lt. Col., USAF
Deputy Director Operations

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