[redacted]

29 October 1959

MEMORANDUM FOR: Deputy Director (Plans)

THROUGH : Acting Chief, EPD

SUBJECT : Handling of CORONA Payload at Assembly Facilities

REFERENCE : [redacted]

1. Attached for your information are:

a. A report by [redacted] on conditions at the Vandenberg "L" Building facility, with reference attached.

b. The Lundahl memo on conditions [redacted] (on which you requested Mr. Kiefer's and my comments).

2. One of the useful by-products of having [redacted] instead of EPD, except the payload has been the opportunity that will give him of spending several days at the "L" Building at Vandenberg out of coming that actually took place during the final phases of readiness for flight number seven. As you will see from his report he found that the conditions in the building, and the methods used in handling film and camera, were not satisfactory. Accordingly, on his return, he prepared the referenced cable requesting several corrective actions. This we have sent to EPD for comment and I hope to forward it to LMSD promptly.

3. [redacted] of PIC were the authors of the quoted paragraph in Mr. Lundahl's memo. Mr. Kiefer and I went over the findings with them. In general, there was a common feeling that camera and film are not being handled at the [redacted] facility with the care that they should from a photographic standpoint. Although this negative reaction was not accompanied by any specific recommendations on PIC's part as to changes that should be made, we feel that conditions can be sufficiently improved:

(1) Through making the changes at "L" Building requested in the referenced cable,

(2) Through a like review by [redacted] of conditions and methods at [redacted] This he will do when he accepts the next payload, this time [redacted]

4. The conditions of the clean room and the balance of the L Building are more like a factory assembly area than the type of area required for handling and pre-flighting specialized photographic equipments. The area is sadly lacking in cleanliness and equipments for the functions to be performed. It seems that no consideration has been given to lighting conditions during loading of the payload into the instrument or during the time the instrument faring is united to the main area. Under the conditions proposed, fogging of the payload can occur.

5. Although extreme care has been exercised in delivering the payload (film) to Vandenberg, it was noted that operational film, although kept in air conditioned area, is stacked on the floor where damage could occur. Camera spools, although notices are attached to each film can indicating that spools are never to be stood on flanges, were placed on flanges under workbenches. A check of all these spools showed all flanges to be damaged. It was also noted that all operational rolls of film had been opened before intended use, increasing the danger of fogged film.

6. The following pieces of equipment are considered necessary and should be procured for the L Building at the earliest possible date.

a. [redacted]
b. [redacted]
c. [redacted]
d. [redacted]
e. Winding Table
f. Film Processor

Since the camera must be moved from the clean room, after loading, to an area in the L Building without air conditioning, it is recommended that additional air conditioning equipment be procured to air condition the complete building. Also, that provisions be made to darken the area during the period the camera section faring is being united to the main area.

7. It is felt that we should draw upon the experience we have obtained on the [redacted] program and apply it to the [redacted] operation. It is, therefore, recommended that the above be reviewed with NRO and USAF with the recommendation that the present team be increased to include a photographic pre-flight technician. This member should be authorized from a photographic stand point to approve the complete payload section for flight. His duties should include:

a. Maintenance of the dark room area in a manner comparable to the way the special equipment sections are maintained on the [redacted] program.

b. Maintenance of film supply and system, e.g., film spools and etc.

c. Processing and evaluation of test film.

d. Loading the instrument.

e. Supervision of instrument operation during systems check.

8. In view of the camera failures experienced on 17 October and 20 October, it was deemed necessary to make a close inspection of the instrument prior to the above reference systems check and acceptance of the unit. The following items were noted:

a. The cassette take up spool was found to have sharp burs on the inside edge of one flange. This item had been installed at Palo Alto and was considered ready for flight. Such burs, however, could have caused a film break in flight.

b. The torque on the supply spool torque motor was found to exceed 10 lbs. This possibly could have backed up the supply spool enough to pull the backside splice into the instrument and again be a possible cause for a film break in flight. The torque motor was readjusted after the pad systems check to 2 lbs or less.

c. It was also noted that loader running through the instrument had scratches throughout the forward area. Although camera platen rolls can be removed for the cleaning, pressure plates for the horizon camera cannot be removed and emulsion on film base built up in these areas might be cause for film breaks at altitude. However, film exposed on the pad system check and processed at [redacted] shows no evidence of scratching during transport of this base material.

It was noted the new high-temperature torque motor had been installed, although a unit of this type had not been qualified (however, qualification was expected prior to flight time). Labor checks have revealed that the only motor received todate is installed on camera #50. Qualification must wait for further deliveries.

9. Other items noticed during inspection of the payload unit are considered by the undersigned to be possible risk items for flight 1051 and should be reviewed for possible improvement for any subsequent flights:

a. Slotted Rollers - Present rollers are film edge supporting and show evidence of heavy creasing on the edges of the film while the camera is operating. This is an area that might cause a film break in flight. It is recommended that consideration be given to installing the old beaded skew roller or a roller of a new design. (P & I seems to have a new improved roller design of this type.)

b. Film Tension - Film tension seems to fluctuate throughout the camera system during operation. This has always been a possible

cause for improper film tracking or film warp around the film looping. It was most noticeable from the supply spool under the first shoe roller and in the input metering rollers. The undersigned considers this flutter or uneven film tension to be excessive at this point. The complete film path should be reviewed with the view to insuring constant film tension throughout the system.

10. In view of the above, the following are recommended:

a. That Headquarters, working with LMSD review acceptance specs for the payload area and devise a simplified workable document that will show numerical limits or other acceptable limits and the results of all tests performed by LMSD. This will expedite acceptance of each unit.

b. That LMSD be encouraged to complete all work and modifications, recommended for each flight unit, at Palo Alto prior to shipment to Vandenberg AFB.

c. That Headquarters, in cooperation with BMD, aid LMSD in establishing pre-flight SOP's to be used during the L Building count down prior to launch. Also, aid LMSD (if necessary) in the selection and training of a photographic pre-flight technician. It is recommended that this person be permanently assigned to the [illegible] LMSD L Building.

d. That all equipments mentioned in paragraph 6 be procured and installed in the L Building at the earliest possible time.

e. That the undersigned or a team consisting of the undersigned, Mr. E. L. Green (or representative) with a LMSD representative make periodic visits to Vandenberg AFB to insure implementation and compliance with the above recommendations. These visits should be made at least once every 30 days.

/s/

[redacted]

[illegible]

Attachments:

[redacted]

Distribution:

[redacted]

[redacted]

[redacted]

29 October 1959

MEMORANDUM FOR THE RECORD

SUBJECT: Trip Report of [redacted]

1. During the period of 20 October 1959 to 26 October 1959, the undersigned with Colonel C. Murphy, [redacted] (of the project), [redacted] (NPO), and Mr. Z. L. Green [redacted] visited Vandenberg Air Force Base to accept payload section for flight 1051 and to review film handling and pre-flight procedures employed at L Building.

2. Unit 109 was shipped to Vandenberg AFB on Saturday, 17 October and camera 35-10 was shipped on Wednesday, 21 October. All documentation, e.i., camera log, and test records were shipped with the camera. The above team arrived at Vandenberg AFB a few hours after arrival of the [redacted] review of test records and the camera log by Colonel Murphy, [redacted] and the undersigned revealed records to be insufficient and not up to date, preventing immediate acceptance of the payload section. Records indicated that there had been a camera jam malfunction on the last MIT's test, and that a film break occurred on the tests run at Palo Alto on 17 October. Additional documentation received later from Palo Alto indicated the camera had only about 300 cycles of satisfactory operation prior to shipment to Vandenberg AFB. In light of information contained in camera log and test data, it was deemed necessary to conduct further operational tests before acceptance could be made of the payload unit for flight 1051. It was agreed that these tests would be made during systems check at the pad and after the unit had been returned to the L Building. No attempt was made to clean the instrument for these tests; however, the unit was configured (including all changes, such as installation of the new guillotine), as near flight configuration as possible. (It seems this is not considered standard practice by the Vandenberg AFB LSD team prior to systems runs.) By insisting on this procedure many discrepancies were noted in the established pre-flight procedures.

3. The LSD team, although being very capable in preparing the vehicle for launch, does not have, as a team member, anyone with sufficient background and/or experience to adequately prepare aerial photographic equipment for flight.

4. We have felt for some time that [redacted] is not equal to his job and that this weakness might have a [redacted] relationship to the program failures. We found that [redacted] agreed and accordingly Colonel Odar recently made the point to [redacted]. I have just heard that Jim Flusser is taking direct charge of the [redacted] operation and this should be of help in curing the ills found by [redacted].

[redacted]
Chief, Development Branch
DPD-DD/P

Attachments:
[redacted]

DB/DPD-DD/P: [redacted]

Distribution:
[redacted]

14 October 19

MEMORANDUM FOR: Deputy Director (Plans)

SUBJECT: Apparent Discrepancies Between 117L and C Assembly Facilities

1. As volunteered to you briefly on 12 October after the Senior Staff Meeting and now in response to your request, I would offer the following extract from one of our memoranda for the record:

"In reviewing the plant in which the nose cones for Project 117L are being assembled, it has been noted that great care is taken to create an atmosphere of surgical sterility. This includes the changing of clothes, complete bathing, surgical garments, face masks, hats, etc. Even a wind tunnel which dries

for [redacted] sophisticated [redacted] spacious preparation rooms. Contrasting [redacted] of this sterile, highly controlled environment, it has been noted that the "C" facility has the atmosphere of somewhat less than ideal cleanliness factors with no apparent controls for pressure, humidity, [redacted] highly technical and complex [redacted] impossible for us to evaluate the differences in methodologies but there can be little doubt that we are dealing with two very separate and distinct [redacted] analogous end products. Certainly the 117L facility is more expensive even though the complexity and technology presented are similar."

ARTHUR C. LUNDAHL
Director
Photographic Intelligence Center

SECRET