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[REDACTED]
23 May 1967

MEMORANDUM FOR: Director, Office of Special Projects

SUBJECT: Flight Readiness Inspection Conducted
at AP and VAFB for CORONA Mission 1041

1. During the performance evaluation of CORONA Mission 1040, on 20-21 April, it was noticed that there was more than the normal amount of photography degraded by the presence of foreign matter in the camera system. Of particular concern was an object, probably metal, that was imbedded in one of the metering rollers causing cyclic rupture and cracking of the emulsion. No less important was an unusually large piece of debris associated with the field flattener frequently producing a rather wide minus density streak diagonally spanning the major axis of the frame. I suggested to the PET that [REDACTED] and myself, each having considerable experience in clean room practices, personally observe the flight readiness practices and procedures at AP and VAFB for Mission 1041.

2. This inspection was made on 4 and 5 May at AP and on 6 May at VAFB. The AP facility and practices that could be observed are adequate for the protection of the payload from dirt. Since our visit and its purpose were announced considerably in advance, what we saw may not have been the daily routine; but if it was they are doing the best they can. To insure that the high level of cleanliness practices be adhered to all the time, I suggest that the Resident Office make frequent spot checks, if indeed this is not already being done. I found such checks absolutely necessary when I was Resident there. People are naturally dirty and must be reminded occasionally.

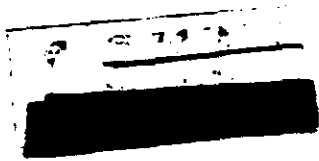
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3. At Vandenberg the payload is not exposed to the outside environment enough to accumulate much more dirt. Small access ports are opened for visual inspection of film tracking before and during readiness checks. At this time the payload is inside a van that has, or is supposed to have, a carefully conditioned atmosphere. The large and rather noticeable fluctuations in temperature in the van should be of concern.

4. From the results of the West Coast inspection, one is naturally led to the conclusion that the more offensive debris in the camera system must be accumulating during the manufacturing and assembly processes at Boston, and during the manufacturing and integration phases at AP. Once the system is assembled and made ready for loading, all the accessible and observable areas are carefully cleaned and can be made to pass almost any inspection. There is much dirt that escapes the eye and the vacuum cleaner but cannot remain unaffected by the lift-off environment. It is this dirt that gets shaken out of its hiding places to float around in zero-G, eventually to find its way into the optical path or on some roller or gear. Not all of it, but enough of it.


5. How far one wishes to go in this cleanliness crusade depends, perhaps, in this day and age, on how big a howl can be expected from the users when an important target is obscured. And, as if by some strange design of chance, the target that is obscured is always the most important. I am convinced that Boston is shipping dirt to AP that AP cannot remove without complete disassembly of the cameras. I am equally convinced that AP contributes dirt that cannot be removed after final assembly. Boston needs a clean room. Not merely so that the cameras can be made and assembled in a clean environment but, of greater importance, so that the people who work on the cameras can become psychologically impressed with the need to keep the system clean. A clean environment is the best motivation for clean practices.

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6. Whether or not it is economical at this stage of our association with Boston to build them a clean room to match the final assembly area at AP is for someone else to decide. There has always been dirt and there always will be dirt. A clean room at Boston would only reduce it, not eliminate it. Furthermore, the amount of reduction would probably be difficult to measure. At no time in the past could it have been said with any certainty that foreign matter caused the failure of a camera system. Any time in the past it could have been said that foreign matter contributed to the degradation of the photography. It has been mostly cosmetic in effect, and very little useful photography has been lost. Perhaps if we can hold the line we have established over the years, it will be sufficient. It has taken a great deal of harping and cursing and many white-glove inspections to maintain the line. It will take no less effort to keep the situation from becoming worse. If it gets worse than, or continues as bad as 1040 we can expect more than cosmetic defects and a few cries from the using community.


VERNARD H. WEBB

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