

September 4, 1964

MEMORANDUM FOR SECRETARY VANCE

In the many recent discussions and memoranda relating to FULCRUM, misunderstandings, differing views, or differing interpretations have been evident. I have tried below to identify the more serious of these, adding a recommendation by way of conclusion.

1. On August 11, there was a discussion of the use by CIA of a systems engineering contractor to avoid a need to expand their staff to guide the FULCRUM effort. It was my understanding of this discussion, in its context, that it applied to the management technique that the CIA would use should a full scale development be undertaken. It is evident from Mr. McCone's memorandum of August 14 to Dr. Wheelon, that he proposes to use a separate systems engineering contractor also during any Phase I studies.

2. In McCone's memorandum of August 14, already cited, in Carter's memorandum to Wheelon of August 27, and in Wheelon's response thereto of August 31, there are explanatory phrases and statements amplifying the term "systems engineering." In all cases, the function that is thereby described appears to me to be identical with that which Dr. Wheelon earlier described to me as the function to be performed by a proposed "integration and check-out" contractor. At a meeting in my office on about August 17, Wheelon and Maxey stated explicitly that their integration and check-out contractor would not do system engineering. Specifically, the prime systems engineering functions of defining interfaces, setting interface specifications, establishing performance criteria and margins for subsystems, and doing so in such a way as to optimize the whole system, were reserved for the CIA.

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3. On August 11, Dr. Fubini suggested that, in addition to work on the camera and film transport system, already agreed to, a contractor be engaged to do a comprehensive systems design study. This was offered as an alternative to Dr. Wheelon's plan to engage separate study contractors for spacecraft and re-entry vehicle, integrating all of the study efforts by use of his own staff.

The difference in these two concepts seems to be fundamental. As I interpret Fubini's words - a fortiori in the particular context in which they arose - the systems study contractor is essentially a prime contractor with, among other responsibilities, a contractually defined one to describe a complete workable system, to analyze its performance, and to defend it against alternatives and against criticism. In Dr. Wheelon's proposal, this central responsibility is reserved to the Government.

Dr. Wheelon and I discussed this difference at length at our meeting of August 17. He understands it fully.

On August 11 we agreed to Fubini's suggestion. McCone's memorandum of August 14 describes a concept thereof very different from mine, and much like Wheelon's original plan. For this reason, Wheelon and I reached no agreement on August 17.

4. I feel very strongly that a systems study of FULCRIM, if warranted at this time, should be done by a systems study contractor who has the creative responsibility outlined above. There is then no need for a separate systems engineering contractor during the study phase, since the study contractor's responsibilities oblige him to perform that function as a matter of course.

The McCone-Carter-Wheelon correspondence abounds with statements that FULCRIM is an ~~(S)~~ NRO project, and McCone and Carter say that it will use ~~(S)~~ NRO money. I feel very strongly

that in this case I should review the work statements of all FULCRIM contracts before final negotiations are consummated. This is explicit in your letter of July 29 to McCone. It is conspicuously absent from the McCone-Carter-Wheeler correspondence.

In sum: your letter of July 29 and our supposed agreements of August 11 describe the following conduct for FULCRIM Phase I:

- a. Preliminary optical/mechanical design, prototype fabrication, and dynamical test of the camera, sole source to ITIR;
- b. Possibly competitive efforts of similar kind on the film transport mechanism;
- c. A systems design study of the whole system, conducted by a study contractor who would not be restrained from bidding on a subsequent development; parallel competitive studies might be considered;
- d. ~~(S)~~ DNRO will review work statements of all contracts before final negotiation;
- e. ~~(S)~~ NRO funds will be released against firm negotiated prices;
- f. The whole is an ~~(S)~~ NRO project and ~~(S)~~ DNRO will have access to all information.

I think that we should continue to stand on this position.

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Director
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