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CONTROLSBVE-0056-65
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12 February 1965

MEMORANDUM FOR: Chief, Special Projects Staff

SUBJECT: Weekly Status Report No. 21 on Project FULCRUM

1. Camera System

A. ITEK - Messrs. Maxey, McMahon, Dirks, [redacted] Crowley, McDonald, and Dr. Scott attended a customer review meeting at Itek on 9 February. The status of the brassboard testing in ambient was reviewed in detail and the decision to start testing in vacuum was withheld until further ambient testing was accomplished. Dr. Hills of Itek was queried in some detail on why standard beryllium rather than instrumentation beryllium had been ordered for the folding mirror. Dr. Hills was further asked to present Itek's opinion, in view of the beryllium stress problem, as to the ultimate feasibility and desirability of using beryllium for the folding mirror in production quantities. His answer was that, although this was not a simple problem, Itek felt that it could meet both schedule and performance requirements. The question of relocating film supply spools in order to minimize c. g. shift was asked, and Mr. Batchelder agreed to look further into the problem, but was not very optimistic.

Messrs. Maxey and Dirks visited Itek on 12 February for a second look at the ambient brassboard test status. It was again decided not to shift to vacuum testing at that time in view of the feasibility briefing scheduled for the week of 22 February.

B. P.E. - Six proposals were submitted by P.E. on 8 Feb., covering suggested additional studies to be used as FULCRUM "insurance" or as elements of some other system. These were:

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- (1) An 18-month investigation of Cer-Vit as a new material for light-weight mirrors (\$625,000)
- (2) Moire film velocity and flatness measurements (5 1/2 months study for \$120,000)
- (3) Continued autofocus control effort (6 months for \$67,000)
- (4) Film transport environmental study (7 months for \$105,000)
- (5) Thermal analysis of P.E.'s ultimate camera design (16 months for \$890,000)
- (6) "Figure 8" scan dynamics study (6 months for \$110,000)

None of these were approved by the Project Office.

C. STL - A fixed-price redeterminable cost proposal for the amount of \$24,808 was submitted by STL covering the additional tasks approved for the month of February. Since there was an estimated \$27,000 ^{UNDEP} ~~over~~run from the previous contract, no additional funding was necessary.

D. RCA - Most of the analytical work having been completed, major efforts have been directed toward completion of the Design Study Final Report, due 15 February.

2. Spacecraft

[redacted] visited G. E. on 11 February to negotiate G. E.'s contract for the month of February. A figure of \$110,000 was reached, well short of the \$140,000 originally allocated. [redacted] further discussed the work statement and deliverables for the February effort. Agreed deliverables are:

- (1) An engineering report on the attitude control system, covering:
 - a) Propellant type and thrust level (s).
 - b) Attitude control sensing and electronics, including recommended system configuration.

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- (2) A draft of the preliminary interface document between payload, re-entry vehicle, and spacecraft.
- (3) A status report on the program specification for the drag make-up unit.
- (4) An engineering report on the SGLS configuration, including preliminary requirements for the spacecraft.

A twix outlining G. E. 's support for the evaluation panel briefing was sent on 11 February. [] discussed the specifics for the requested spacecraft model with Mr. Hood during his 11 February meeting.

A twix was sent to STL on 11 February terminating the spacecraft effort at STL. Among the reasons for cancelling were:

- (1) The conclusion that vulnerability equipment was relatively light.
- (2) STL's spacecraft design did not appear to be significantly more efficient than G. E. 's.
- (3) The necessity for establishing clean interface with associate contractors, made more difficult with two spacecraft efforts.

It is intended that further STL spacecraft-orientated analysis and monitoring be performed under the SEAC contract, specifically, attitude control system analysis, programmer requirements and design, and TT&C equipment optimization.

3. Recovery System

[] and Mr. Baer of STL visited Avco on 10 February to review the technical status of the recovery system and to discuss the February work statement. Mr. McDonald negotiated the February effort at a \$140,000 level, following approval of the work statement.

A twex was sent to Avco on 11 February defining their support required for the evaluation panel briefing.

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4. Systems Engineering

It was intended that the program planning, reliability, and test planning personnel from the systems engineering contractor visit the three other associate contractors for the purpose of meeting their counterparts and to describe the general systems engineering approach to be taken. The visit planned for G. E. was cancelled because of the delayed termination of the STL spacecraft contract. The visit to Itek on 9 February was limited to motel discussions with Itek program planners, reliability experts, and test planners attending, because the equivalent SEAC personnel lacked FULCRUM clearances. Messrs. Frank, Grady, and Boswell, however, discussed the general SEAC function and facility requirements at Itek, and with Avco the following day.

STL was requested by twix on 11 February to present launch vehicle configuration, payload, structural analysis, and guidance studies for the boost vehicle at the evaluation panel briefing, and also to provide additional support in the program planning area.

5. Interface Aspects

An interface meeting was held at Itek on 12 February to resolve the payload transient energy demands on the spacecraft power supplies. Attending the meeting were Messrs. Batchelder, Redpath, and Rubesin of Itek; Strawn, Mattson, and Stamm of G. E. ; and of the Project Office.

O/DDS&T/SPS, /mes/5725 (8 March 65)

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