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GUARD PASS WHIG

~~S E C R E T~~ 211600Z APR 75 CITE CHARGE 3815.
PRIORITY WHIG.
HANDLE VIA BYEMAN CHANNELS ONLY
HEXAGON
FOR COL WHEELER. FROM MAJ GEN BRADBURN/COL ANDERSON.
SUBJ: PLANNING FOR HEXAGON BLOCK IV.
REF: (A) WHIG 0551, 28 FEB 75
(B) WHIG 0570, 7 MAR 75
(C) WHIG 0476, 26 MAR 75

1. WE HAVE INITIATED BLOCK IV STUDIES USING SUSTAINING ENGINEERING ON A NON-INTERFERENCE BASIS AT LMSC, GE AND PE. AT LMSC WE ARE LOOKING AT WAYS TO EXTEND LIFE (PRIMARILY ADDITIONAL HYDRAZINE). AT GE, UTICA, WE ARE LOOKING AT EXPANDING THE COMMAND AND SECURE WORD CAPABILITY. THIS IS PARTICULARLY IMPORTANT FOR

LONGER LIFE AND TO TAKE ADVANTAGE OF THE BENEFITS OF THE MODIFIED FILM TRANSPORT (MFT) OR THE ITEK PAYLOAD. AT PE WE ARE LOOKING AT BOTH THE MFT AND SOLID STATE SENSOR (S CUBED). THE ONLY AREA NOT PRESENTLY BEING ADEQUATELY COVERED IS COMPETITION.

2. AT ITEK WE DO NOT HAVE A POOL OF SUSTAINING ENGINEERS AS WE DO AT LMSC, GE AND PE. TO PROCEED ANY FURTHER WITH THE ITEK COMPETITIVE CAMERA (ALL WORK HAS BEEN STOPPED), IT WILL BE NECESSARY TO PROVIDE THE ADDITIONAL FUNDS LISTED BELOW.

3. THE PROJECTED HEXAGON MISSION 1219 LAUNCH DATE OF OCT 1981 REQUIRES THE FOLLOWING MILESTONE ACTIVITIES TO BE STARTED ON THE DATES INDICATED TO MAKE THAT DATE ACHIEVABLE.

INITIATE ENGINEERING MODEL AT ITEK	JUL 75
DESIGN REVIEW (ENGINEERING MODEL)	DEC 75
PRELIMINARY SYSTEM DESIGN	DEC 75
OPTICS INTEGRATION AND TEST	MAR 76
ENGINEERING MODEL BASELINE TESTS	MAY 76

WORKING COPY

~~SECRET~~

BYEMAN

FINAL SYSTEM DESIGN AND SYSTEM DEVELOPMENT PLAN	SEP 76
ISSUE RFP	AUG 76
CONTRACTOR PROPOSALS RECEIVED	JAN 77

C

ONTRACT GO-AHEAD JUL 77
IF BLOCK IV PAYLOAD IS NOT COMPETED THESE DATES CAN BE DELAYED THREE MONTHS.
4. TO KEEP THE ITEK CAMERA DESIGN ALIVE AND TO OBTAIN REALISTIC COST INFORMATION, THE FOLLOWING FUNDS ARE REQUIRED:
(DOLLARS IN MILLIONS)
FY 76 FT FY 77 TOTAL
6.060 1.453 .520 8.033
COSTS PERTAINING TO THE DEVELOPMENT, PRODUCTION AND OPERATION OF BLOCK IV WILL BE INCLUDED IN THE MAY BUDGET SUBMISSION AND ARE NOT INCLUDED HEREIN.
5. THE OPERATIONAL FLEXIBILITY INDICATED IN PARAGRAPH 3(1) THRU (4) OF WHIG 0370 IS OBTAINABLE WITH EITHER THE PERKIN ELMER MODIFIED FILM TRANSPORT OR THE ITEK

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DESIGN. WE CURRENTLY PLAN TO INCLUDE MFT AS THE BLOCK IV BASELINE THEREFORE THERE ARE NO ADDITIONAL COSTS INCURRED IN OBTAINING THIS OPERATIONAL FLEXIBILITY. STUDIES AND ANALYSES IN PROGRESS WILL DEFINE EFFORT REQUIRED TO SATISFY NIIRS 4 UNDER A RANGE OF CONDITIONS. MILESTONES AND COSTS WILL BE DETERMINED SHORTLY AFTER THE SIERRA STUDY IS CONCLUDED. WE ARE STUDYING THE DATA PROVIDED BY WHIG 0476 TO ASSESS IMPACT TO THE BASELINE, IF ANY.
6. IN RESPONSE TO PARAGRAPH E, WHIG 0370; WE ARE CURRENTLY ANALYZING AN INCREASE IN THE SUPPLY STACK DIAMETER WHICH WILL PROVIDE AN EXTRA 3500 FT ON EACH SIDE. CHANGES IN SUPPLY SERVO LOOP AND STACK DIAMETER DETECTOR MAY BE REQUIRED. INCORPORATION OF THESE MODIFICATIONS AS EARLY AS MISSION 1213 MAY BE POSSIBLE. A FURTHER INCREASE IN THE SUPPLY STACK DIAMETER PROVIDING ANOTHER 3300 FT ON EACH SIDE IS ALSO BEING STUDIED. IN ADDITION TO THE SUPPLY SERVO LOOP AND STACK DIAMETER DETECTOR CHANGES, THIS INCREASE WILL REQUIRE

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MODIFICATIONS IN THE TAKE-UP ASSEMBLY AND IN EQUIPMENTS AT BRIDGEHEAD. THESE CHANGES ARE PLANNED FOR INCORPORATION NO EARLIER THAN MISSION 1219 (BLOCK IV). BOTH OF THE ABOVE CHANGES ARE APPLICABLE TO EK 1414.
7. THE SOFTWARE MODIFICATIONS REQUIRED FOR BLOCK IV WILL BE DETAILED AS THE HARDWARE MODIFICATIONS ARE IDENTIFIED. THE INITIAL ESTIMATE FOR THE CAPABILITIES IDENTIFIED IN YOUR MESSAGE IS FROM 2.5 TO 3 MILLION

DOLLARS. STUDIES ARE IN PROCESS TO DETERMINE THE DESIGN INTERDEPENDENCIES OF THSE CAPABILITIES.
8. IT IS DIFFICULT TO DECIDE TO COMPETE A SYSTEM THAT IS PERFORMING AS WELL AS THE PE CAMERA. THERE ARE; HOWEVER, TWO DISTINCT ADVANTAGES OF COMPETITION. FIRST, OF COURSE, IS THE SUBSTANTIAL COST SAVINGS WHICH MIGHT BE REALIZED EVEN IF PERKIN ELMER WINS THE COMPETITION. SECOND, THE ITEK DESIGN HAS SMALL, BUT IMPORTANT TECHNICAL ADVANTAGES. THE INCREASED OPTICAL BAR DIAMETER WILL PERMIT US TO OPERATE AT A HIGHER ALTITUDE WHICH REDUCES THE ORBIT ADJUST REQUIREMENTS, FILM

REVERSAL IS NOT REQUIRED EVEN IN THE FINE FILM PATH, AND THE REDUCED COMPLEXITY IS BOUND TO HAVE A PAYOFF. FOR THESE REASONS, I RECOMMEND THE ITEK COMPETITIVE CAMERA STUDY BE REINSTATED AT THE FUNDING LEVEL OF PARAGRAPH 4 ABOVE.
E-2 IMPDET
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BT