~~TOP SECRET~~ PROJECT BYEMAN

~~(S)~~ NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.

THE NRO STAFF

16 December 1969

MEMORANDUM FOR GENERAL ALLEN

SUBJECT: Proposed SP-6 Program for Investigating Improved Geopositioning Capabilities from HEXAGON

BACKGROUND

By means of the message at TAB A, General King notified you of an SP-6 proposal to study the capability of photographic search systems to meet more stringent target location accuracy requirements. The current requirement for the 1970-74 time frame is 450' horizontal (CE .90), 300' vertical (90% assurance). DIA has recently received confirmation from DDR&E that the technical goal for 1974 should be 210' horizontal and 150' vertical and has taken action to secure USIB approval. The CORONA/DISIC doppler system is estimated to be able to meet the current requirement but cannot satisfy the more stringent vertical goal. The HEXAGON 12" stellar terrain/doppler system has the potential of satisfying the new goal but has not been specifically studied for this purpose.

DISCUSSION

Since receipt of General King's message, I have had an opportunity to discuss the proposed SP-6 effort in detail with its author, [redacted]. The three major objective areas of System Analysis, Self Calibration, and Camera Calibration are designed to study the contribution and inter-relation of instrument (camera) and ephemeris accuracy with regard to the geopositioning problem. The overall objective is to better evaluate the HEXAGON capability to satisfy the requirement and recommend any appropriate system changes.

Total funding of the proposed program would require an additional approval of $155K in FY 70 and $465K in FY 71. A more austere but I believe still meaningful approach would again require $155K this fiscal year but only $240K in FY 71. The latter approach would still permit a fairly complete analysis of HEXAGON geopositioning accuracy based on actual CORONA/doppler operational data but defers any definitive studies of the effects of color and contrast on calibration

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BYEMAN
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accuracy and continues the investigation of a laser calibration device at a lower level. The basis for the lower cost approach was the order of priority given the various elements of the effort by [redacted].

CONCLUSIONS

a. A tighter missile targetting accuracy has been identified for 1974. This was confirmed by [redacted] during his recent investigations with regard to HEXAGON justification.

b. The NRO should examine its capability to satisfy the new requirement.

c. The effort proposed by SP-6 addresses the HEXAGON capability to satisfy the more stringent requirement. This goal can be satisfied at a reduced level of funding in FY 71 over that originally proposed.

RECOMMENDATION

It is recommended that the additional approval of $155K be granted for FY 70 and the FY 71 estimates be adjusted to reflect an additional amount of $240K.

ROBERT A. SCHOW, JR.
Major, CE, USA

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TAB A, CHARGE 4501 (PROA-1-F)

Dave - [redacted] is wanting to see what we want to do. I believe some study is warranted in this area.
Bob.