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OMB

November 22, 1971

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Issue: Should the HEXAGON launch schedule in FY 1973 be three 60 day missions?

Discussion:

In his Director's Report, Dr. McLucas indicates that continuous photographic satellite coverage beginning in the Spring of 1972 will be possible without any additional funding. In light of this possibility, if nearly continuous (300 days per year) is sufficient for the strategic surveillance rather than crisis management role of these film recovery systems, then a slight reduction of the HEXAGON launch schedule should be seriously considered.

Launch schedule and satellite availability:

Primarily as a result of the slip in the launch of the first HEXAGON, there is already somewhat of a backlog in the satellite vehicle and camera procurement pipeline for HEXAGON. For example, the camera for the 6th satellite will very shortly be available for mating with a spacecraft and yet the launch of #6 is not scheduled until January-March 1973. Significant slack between availability and scheduled launch may well be developing in 1972-1973.

A slightly reduced launch schedule in FY 1973 would facilitate the development of a desirable capability to launch a backup HEXAGON "pipeline" vehicle within 45 days.

Mission capability and the broad area search requirement:

By FY 1973, HEXAGON missions can with confidence be expected to last 60 days. The first HEXAGON spacecraft and camera operated generally well for 51 days. A HEXAGON satellite has a capability to cover 20 million square nautical miles. On a 60 days mission, 70% of that total is conservatively expected to be cloud free, producing 14 million sq NM per mission.

The built-up area of the Soviet Bloc and China, which USIB requires be covered every six months, comprises 5 million sq. NM. The undeveloped areas, which are to be covered every 12 months, contain 5.4 million square NM.

Thus it is apparent that three HEXAGON missions would be more than adequate for the semi-annual and annual search requirement:

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Program Capability (Cloud Free)	USIB Broad Area Search Requirement
1 HEXAGON (60 days) produces 14M sq. NM	Built-up area, every 6 months 4.89M sq. miles
1 HEXAGON (60 days) produces 14M sq. NM	Built-up area, every 6 months 4.89M sq. miles
1 HEXAGON (60 days) produces 14M sq. NM	Undeveloped area once annually 5.42M sq. miles
Annual product: 42M sq. NM	Annual need: 15.2M sq. NM

The third HEXAGON would be valuable for SALT and MBFR-related continuity.

The GAMBIT-3 would continue to meet 95-99% of the quarterly high resolution surveillance and weapons details requirements. Coupled with three HEXAGONs, the four GAMBIT-3s per year in FY 1973 would enable nearly 300 days of coverage with photo satellites. That would be a marked improvement over FY 1969 and 1970 when only 168 and 148 days of coverage was available respectively. The adequacy of such a mix for ground force targets is illustrated by the fact against 3,750 ground force targets in the COMIREX deck, the recent GAMBIT mission 4332 photographed over 500 cloud free and the first HEXAGON mission collected more than 1780 targets.

The adequacy of the three HEXAGONs scheduled for monitoring ICBM silo construction is evidenced by the following comparison:

Search program annual accesses to ICBM areas

CY 1969	CY 1970	FY 1973
10	10	54

OMB Recommendation:

A HEXAGON launch schedule of three 60 day missions be approved, for FY 1973 and beyond.

Cost reductions in FY 1973 of $10-25M should result from such a decision.