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

OFFICE OF THE DIRECTOR

March 15, 1969

MEMORANDUM FOR DIRECTOR OF SPECIAL PROJECTS, SAFSP
DIRECTOR, CIA RECONNAISSANCE PROGRAMS

SUBJECT: HEXAGON Software Programs

The subject of HEXAGON software has been under study by
SAFSP, CIA-OSP and the NRO Staff since the inception of the pro-
gram. I have reviewed in detail these comprehensive studies and
have arrived at the following conclusions:

1. Under the HEXAGON Management Plan, the System
Project Director (SPD) who is the Director of SAFSP has full
and complete responsibility for on-orbit operations (see my
memorandum of March 15, 1969, BYE 12671-69, for addi-
tional clarification to the Director of SAFSP and the Director,
CIA Reconnaissance Programs). He is therefore responsible
for all software used at the STC to conduct HEXAGON missions
including all command generation and targeting software. This
software will be designed including weighting parameters for
areas and targets, value functions, weather verification and
prediction factors. The application of these factors will be on
the basis of priorities and criteria established by the NRO
Satellite Operations Center (SOC) both prior to and (to the
extent practicable) during missions. The details of the extent
to which on-orbit control software can accept preestablished
or changed priorities and criteria will be determined by
agreement between the SPD and the SOC with the SSSPO par-
ticipating for the purpose of assuring compatibility with sensor
interfaces.

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HEXAGON/CORONA/GAMBIT

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2. The SSSPO responsibility for participation in development and operation of on-orbit command, control and analysis software will be in support of the SPD and under his direction. In accordance with the HEXAGON Management Plan, the SSSPO will participate in all software development to the full extent necessary to assure optimum utilization of sensor capabilities and compatibility with all sensor interfaces, and will have full and complete access to all software development activities.

3. The SOC, in order to make independent assessments of the validity of the criteria and priorities established before and during HEXAGON missions and the effectiveness of these factors in optimizing intelligence collection in accordance with USIB requirements, will have a separate and distinct activity to analyze the effects of varying these parameters to be conducted on both a pre-mission and post-mission basis; further since HEXAGON missions will be extended over periods of 30 to 45 days, there will be considerable opportunity for off-line adjustments and optimizations in the light of mission results. It is essential that this activity be conducted in the Washington area to permit close interaction with the requirements authorities in the intelligence community. In conducting this activity, full use will be made of computer outputs and computer programs from the SPD activity at the STC and at Los Angeles to the extent feasible and economical. To the extent that additional technical and contractual support is required for this SOC activity, it is to be provided by CIA-OSP as a function separate and distinct from the SSSPO.

In the alternative proposals for developing and managing the HEXAGON software programs, there were numerous references to software programs which are in use in the CORONA and GAMBIT programs. While it is desired that all possible advantage be taken of past experience in these programs, it must be recognized that the HEXAGON system has capabilities which are essentially different from either of these systems and that software development should be directed toward maximizing collection effectiveness in light of the unique capabilities of the HEXAGON system.

Alexander H. Flax

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