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HEXAGON/DORIAN COMIREX-D-31.1/3
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18 March 1969

MEMORANDUM FOR: Committee on Imagery Requirements and
Exploitation

SUBJECT: Planning Factors for the Exploitation of
Reconnaissance Imagery: National
Reconnaissance Program, FY 1970-1974

REFERENCE: The National Tasking Plan for the Exploitation
of Multi-Sensor Imagery (NTP), January 1967

The attached memorandum will be discussed at the COMIREX
meeting on Thursday, 20 March 1969.

Hayden Channing
Executive Secretary

Committee on Imagery Requirements and Exploitation

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1. In accordance with the reference, COMIREX has developed information which it is hoped will be of assistance to those with exploitation responsibilities for sizing future exploitation programs. While the National Tasking Plan requires this information in support of the national reconnaissance program for a five-year period, FY 1970-1974, COMIREX notes that such future planning can only be based on the best information available at this time. There can very well be radical changes within the period particularly beyond FY 1970. COMIREX notes also that as this report will be revised on an annual basis there should be adequate opportunity for those planning imagery interpreter resources needs to keep procurement programs in perspective. In this same context of the difficulty of accurate extrapolation beyond the next year or

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two COMIREX requests that, should any of the longer term predictions of workload appear to require expensive procurement or reorganization of assets, these ^{to change the} ~~problems~~ ^{predictions already} be identified to COMIREX on ad hoc basis in order that the estimates contained in this memorandum may be reassessed.

2. During the period FY 1970-1974, the NRP could employ up to eleven different collection projects or systems, which have the inherent capability of collecting imagery over any denied territory. The estimated number of successful missions for the projects over the five-year period are set forth in Tab A; figures are tailored to the estimated success of the missions involved based on experience with present systems and estimates for future systems. These "estimated probability of success" figures are shown as footnotes on Tab A. The technical characteristics are summarized in Tab B.

3. Supporting data on systems or projects is given below:

a. KH-4A: This satellite collection project has two recovery buckets for each launch. The project will terminate after the one launch in FY 1970.

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b. KH-4B: This satellite collection project is also characterized by two buckets for each launch. The future of this project depends primarily upon the introduction and success of the KH-9 collection project during FY 1971. At present, however, no launches are scheduled after FY 1971.

c. KH-9: This satellite collection project will not become operational until sometime during FY 1971. The project will have four recovery buckets or missions for intelligence photography and a single for mapping (starting with the fourth mission) with each launch and will be employed against area search and target surveillance requirements. A single intelligence bucket will provide useable imagery of about the same geographic area as a single bucket of the KH-4B project that is operating with the UTB film and will have the ground resolution characteristics of the old KH-7 collection project.

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d. KH-8: This satellite collection project is currently operating as a high resolution spotting system. Beginning in FY 1970, each launch will consist of two recovery buckets. The future of this project during FY 1972 and beyond depends primarily upon the introduction and success of the KH-10 series, and to a lesser extent the KH-9 project.

e. KH-10A: This satellite collection project is scheduled to be initiated during FY 1972. It will be a very high resolution spotting system. There will be only one recovery bucket for each launch. No launches have been projected beyond FY 1973.

f. KH-10B: This satellite collection project is scheduled to be initiated during FY 1973. It is identical to the KH-10A except each launch will have six recovery buckets.

g. TALENT/CHURCHDOOR: These projects involve the U-2 airborne platform. At present, no reasonable launch schedule can be projected for these

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projects. The following represent the different types
of sensors which could be employed for these sorties.

- (1) "B" Configuration Camera
- (2) Delta III Camera
- (3) "H" Camera
- (4) Iris II Camera

h. T-X-1: This is also an airborne project
for which no reasonable launch schedule can be projected.

William A. Tidwell
Chairman
Committee on Imagery Requirements and Exploitation

Attachments:
Tabs A and B

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Tab A

PROJECTION OF NATIONAL RECONNAISSANCE PROGRAM 1970-1974 FOR EXPLOITATION PLANNING

Collection Project	FY 1970			FY 1971			FY 1972			FY 1973			FY 1974		
	Scheduled Launches (Missions)	Success by Buckets Recovered	Successful Days on Orbit	Launches	Buckets	Days	Launches	Buckets	Days	Launches	Buckets	Days	Launches	Buckets	Days
1. KH-4A ^a	1	2	16	-	-	-	-	-	-	-	-	-	-	-	-
2. KH-4B ^b	5	10	86	4-2	8-4	71-36	}*	-	-	-	-	-	-	-	-
3. KH-9 ^c	-	-	-	2-4	7-13	54-96		4	13	96	4	13	96	4	13
4. KH-8 ^d	7**	12	80	5	10	80	5	9	79	4	7	65	4	7	65
5. KH-10A ^e	-	-	-	-	-	-	2	2	54	1	1	27	-	-	-
6. KH-10B ^f	-	-	-	-	-	-	-	-	-	1	6	38	1	6	38
7. TALENT/ CHURCHDOOR	No reasonable schedule can be estimated.														
8. T-X-1	No reasonable schedule can be estimated.														
TOTALS	13	24	182	11-11	25-27	205-212	11	24	229	10	27	226	9	26	199

*If the upper range of the KH-9 is realized in FY 71, KH-4B will be at the lower range, and vice versa.
**The 7th launch during FY 70 has one bucket recovered during FY 70 and one during FY 71.

Estimated Probability of Success

- a. 95 percent for recovering each bucket and total days on orbit.
- b. 95 percent for recovering each bucket and total days on orbit.
- c. 80 percent for recovering each bucket and total days on orbit.
- d. 87 percent for days on orbit.
- e. 100 percent for recovery and 90 percent for total days on orbit.
- f. 90 percent for recovering each bucket and total days on orbit.

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Tab B

Planning Data for the Exploitation of Reconnaissance Imagery*
National Reconnaissance Program FY 1970-1974

Collection Project	Estimated Net Useable** Coverage (Million Sq NM)		Imagery Data					Camera Type	Film Data			
	Stereo	Stereo & Mono	*** Scale	**** Type	Collection Mode	Grnd Resol (feet)	Useable Frame Size		Number of Frames	Gross Footage	Width	Type
1.KH-4A	2.28-2.53	2.42-2.75	1:325,000	B/W	Stereo-Mono	10-15	2.15"x29.3"	6,000	Pan	16,000	70 mm	STB
2.KH-4B	2.17-3.36	2.69-4.17	1:271,000	B/W CD BC C	"	5-10	"	9,000	"	24,000	"	UTB
3. KH-9	a. Intel	2.76-4.25	1:112,000	CD B/W BC C	"	2.4-8	0.5'x2.63' to 0.5'x10.5'	16,700 to 4,200	"	52,000	6.6"	"
	b. Espionage	4.2/-5.30	1:546,000	B/W	Stereo	30-35	9.2"x18.2"	2,000-2,500	Frame	3,000-4,000	9.5"	STB
4.KH-8	0.055-0.072	n/a	1: 36,000	B/W CD C	Stereo-Mono		8.5"x variable	variable	strip	5,000	9.46"	UTB
5.KH-10A	0.008-0.010	"	1: 11,500	B/W C IR	"		9.4" diameter	17,500	frame	15,300	9.5"	"
6.KH-10B	0.001	"	1: 11,500	"	"	"	"	3,340	"	2,920	"	"
7.a. "B" Config	0.126-0.189	"	1: 25,000	B/W	"	2.0-3.0	9"x18"	7,200	"	13,000	9.5"	"
b. Delta III	0.044	"	1: 38,000	B/W	"	1.0-2.0	2.15"x29.3"	6,000	Pan	16,000	70 mm	"
c. "H"	0.005	"	1: 14,000	B/W	"	1.0-2.0	4.5" x 4.5"	4,800	"	2,000	5"	STB
d. Iris II	0.126	"	1: 35,000	B/W	Stereo	1.0-2.8	4.5" x60	2,200	"	10,500	5"	"
8.T-X-1	0.062-0.085	"	1: 35,000	B/W	"	2.0-3.0	9" x 9"	5,600	frame	4,500	9.5"	"

* In terms of satellites the figures given are for single recovery or bucket so the total workload must be estimated in the perspective of bucket increase for some systems as shown in Tab A.
** Includes both stereo and mono coverage, and is based on the range of cloud free imagery obtained in the past by current or comparable collection projects.

*** Scale is at nadir and relative to nominal operating altitudes.
**** Normally only Black and White (B/W), with Camouflage Detection (CD) Color (C), Bi-Color (BC), and Infrared (IR) on a selective basis as required.

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