

TOP SECRET

WORKING PAPER

Approved For Release 2002/06/17 : CIA-RDP78B04767A000400050009-2

25X1  
25X1

BICOLOR

1. Selected passes on Mission [ ] are exposed on black and white film in the bi-spectral mode of acquisition, utilizing a red filter on the forward camera and a green filter on the aft camera. The density of the images on the black and white photography acquired is related to the filters through which they were exposed. To facilitate the readout of bi-spectral information, the photography can be viewed in a color mode referred to as "bicolor", a psuedo color generated from only two colors of the spectrum. To create bicolor imagery, the images on the black and white positives from both cameras must be rectified and projected through filters (red and green), in register, onto a common surface. Limiting factors such as atmospheric conditions, exposure, and reproduction characteristics may degrade the image(s) to the extent that bicolor cannot be created. Those passes exposed in the bi-spectral mode which possess the potential for bicolor creation, subject to the limitations stated above, are indicated by the letters "BC" in the photo reference line immediately following the pass number.

25X1

2. Information contained in this report on targets imaged on the passes exposed to bi-spectral mode is developed from viewing only the black and white positives, utilizing techniques similar to previous KH-4 missions. The exploitation of the bi-spectral data will be implemented at a later date during the third phase exploitation of selected targets.

3. NAC is not currently prepared to produce color prints from the bi-spectral imagery on a production basis for the Community.

Suggested to [ ] that "T-9" should be changed to farther or more detailed explotation - He did not concur.

25X1

LAKP

Declass Review by NIMA / DoD

25X1

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GROUP 1  
Excluded from automatic  
downgrading and  
declassification

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ILLEGIB

Several passes of Mission   <sup>are</sup> were exposed in the bi-spectral 25X1  
 mode of acquisition. Bi-spectral coverage refers to a technique  
 of acquiring conjugate imagery with two cameras each using a filter ILLEGIB  
 which has its peak transmission near opposite ends of the visible  
 spectrum. In this case, a red filter was used on the <sup>forward</sup> fwd camera  
 and a green on the <sup>aft</sup> aft. In acquiring photography in this manner,  
 the density of images on the black and white records is related to  
 the filters through which they were exposed.

To exploit the advantages of bi-spectral photography, the  
 two black and white records can be analyzed individually with  
 respect to the colors which the density represents. I.E., objects  
 on the fwd (red filter) record which appear relatively light (low  
 density) on the DP compared to the same image on the aft (green  
 filter) record can be assumed to be reflecting in the red end of  
 the spectrum. However, these conclusions cannot be accepted  
 as absolute. The angle of the sun relative to the taking lens,  
 atmospheric attenuation, exposure, and reproduction characteristics  
 must also be considered. Even under optimum conditions, the  
 color of an object can only be established as being warm (red or  
 near red) or cool (green or toward the blue end of the spectrum).

In order to facilitate the readout of bi-spectral information,  
 the photography can be viewed in a color mode referred to as  
 "bicolor." Bicolor is a psuedo color generated from two colors of

the spectrum instead of the three, as is necessary for "natural" color. In order to create bicolor imagery, the black and white (DP) records from both cameras (forward and aft panoramic) are projected onto a common surface, in register, through filters comparable to those used in the taking situation (fwd through red - aft through green). Information available by this technique will be similar in scope and value to that gained from the bi-spectral records viewed independently. However, the bi-spectral information becomes more readily apparent and a faster readout is possible. Red or warm tones will appear red or some variation thereof; green or cool tones will appear predominantly green.

The problem of employing the bicolor method of exploitation is that the images must be appropriately filtered and projected in register. The geometry of the KH-4B is such that the imagery must be rectified in order to be successfully registered over areas larger than approximately 0.1 x 0.1 mm.

KPIC is not currently prepared to produce color prints from the bi-spectral imagery on a production basis for the Community.

ILLEGIB

ILLEGIB

25X1

MEMORANDUM FOR:	
<i>Put in B, color project folder</i>	
<hr style="width: 15%; margin-left: auto; margin-right: 0;"/> <div>(DATE)</div>	

FORM NO. 101 REPLACES FORM 10-101  
1 AUG 54 WHICH MAY BE USED.

(47)