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19 February 1968

MEMORANDUM FOR: Director of Special Projects

SUBJECT : Color Film Utilization in CORONA System

1. The J-1 system has never flown with color film. J-1 payload J-37 was chamber tested with a full load of color (SO-121) film in one instrument and a full load of standard 3404 in the other. This payload originally scheduled for flight in October 1966 (mission 1037), was postponed by COMOR on 6 October.

2. Testing of system J-37 with color film was begun at the request of the NRO as an outgrowth of a series of J-3 exposure control conferences. The J-3 conference held at NPIC in February 1966 had concluded that although a loss of resolution was to be expected with color film, complimentary data could be extracted from the color film which in a total sense increases the information base. Viewing each CORONA mission individually, it would be concluded that 3404 was the best film choice, but viewed as a continuing program, a varied film selection could result in an increase in intelligence potential. It was recommended by NPIC that in color photography, stereo pairs be provided which would consist of a black and white frame for resolution and a color frame for contrast and content.

3. As a result of J-37 test history, the Resident Office concluded that:

a) Color (SO-121) film can be handled by the CORONA system.

b) A loss of resolution of approximately 1.6:1 is to be expected on the color instrument (90 lines/mm low contrast with 3404 film is the current requirement specification for CORONA J-1 systems, system reading for J-37 instrument 204 with SO-121 was 73 lines/mm).

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4. J-3 has not flown color film to date. Present plans are:

a) CR-4, scheduled for launch in June, will have a 1600 foot test strip of SO-180 IR Camouflage Color film in one instrument.

b. CR-5 is tentatively scheduled to fly Kodachrome II and SO-121 color film test strips simultaneously. Presently 500 feet each is planned; however, it has been proposed that the amount be increased to 1000 or 1500 feet each to increase the odds of a good sample.

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SO/C/OSP