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11 January 1966<sup>7</sup>

MEMORANDUM FOR: WAT

SUBJECT: Problems Relating to the Feasibility of the Use of KH Photography by Civilian Agencies

- REFERENCES:
- a. Memorandum for Holders of USIB-D-41. 12/23, 29 August 1966
  - b. Memo to DCI from J. J. Hitchcock, 9 December 1966, [REDACTED] Proposal for Civilian Agency Review of T-KH Photography" 25X1A
  - c. Memo to Mr. Bross from J. J. Hitchcock, 3 January 1967, "Report on Meeting with Dr. Steininger," 29 December 1966
  - d. "Summary Report of the Evaluation of Experimental Strategic Military Geodetic Intelligence from Short Focal Length Satellite Photography," April 1966, [REDACTED] 25X1A
  - e. "Study for BoB of Potential Applications of DoD MC&G Data, Systems, Techniques, and Equipment to the Work of the Civil Mapping Agencies (Volume II T-KH Photo Applications)," December 1965

1. The report of July 1966 of the NSAM 156 Committee on "Political and Security Aspects of non-Military Applications of Satellite Earth Sensing" contained a discussion of many possibilities for using KH photography for civil purposes. In August 1966, reference a, the USIB approved COMOR's recommendation that NASA

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establish a panel representing those scientific and technical disciplines of interest to NASA in order to examine the potential of KH photography in meeting its requirements and to make recommendations concerning the desirability of increased NASA participation in the T-KH program. To date no action appears to have been taken by NASA except for the selection and clearance of a number of appropriate scientists and technical personnel.

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2. [redacted] in reference b took action to get the ball rolling by proposing to the DCI and to Secretary Vance a method for providing cleared teams from several agencies including NASA and AID to review the potential of T-KH photography for meeting the needs of U.S. civil mapping agencies (USGS, USC&GS, SCS, FS, etc.), NASA (with respect to its earth resources survey), and AID (with respect to surveys for developmental projects in its foreign aid program).

3. A feasibility review by cleared teams of scientists, technicians, economists, and geographers representing the interests of NASA, AID, and other civil agencies (as proposed by [redacted] could profit from technical and advisory support available from NPIC's expertise on photo interpretation in several disciplinary areas. Such a review, however, would be primarily oriented toward mapping and charting at various scales and toward determining the distribution of significant environmental and physical phenomena. This type of work has fallen broadly within the MC&G field and has been investigated with the use of KH-5 photography in a carefully controlled PI and analytic environment where collateral data were not used except in the evaluation phase as described in reference d. The [redacted]

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[redacted] conducted this work under Task 25 of a contract with the U.S. Army Engineers' GIMRADA. Task 25 included the construction and use for analytic purposes of mosaics covering all of Africa. The evaluation of the PI and analytical work indicated many inadequacies in using photography of such short focal length. It is quite clear in the evaluation that KH-4, and, in some specific instances [redacted] photography would greatly increase the utility of presently classified satellite photography for determining the patterns and descriptions of not only military environmental factors but also of many other phenomena of interest to NASA, AID, and other civil agencies. For the above reasons, I suggest that AMS primarily, and NPIC secondarily, should cooperate in the indoctrination and guidance of the teams conducting the review.

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4. Since NASA apparently did not pick up the ball in establishing a review panel as approved by USIB, I must concur in general with the agreements as reached between [REDACTED] Dr. Steininger, and Mr. J.J. Hitchcock as set forth in reference c. However, I do feel that the interface contact point mentioned in this memorandum should be [REDACTED] and that GIMRADA should function solely as the administrative and housekeeping link in the setup.

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5. Many problems will arise in any operational phase that might be established subsequent to the review by the cleared teams operating within a structure still to be decided between Dr. Hornig, the DCI, and Secretary Vance:

a. An essential problem is of course that of classification of the photography, the extent to which clearances would have to be given, the manner in which the information on the photography could be used on an unclassified basis (partially already established in the Sanitization Manual) and the possibility of declassifying actual photos by orthophoto methods. This latter point raises questions of cost, time, and certain additional unresolved technical peculiarities of orthophotography based on satellite photography.

b. The majority of the interests of the scientists, economists, geographers, and those in other disciplines would require extensive analysis of the photographs themselves. Large cadres of interested professionals in these many disciplines would have to be cleared to utilize the T-KH photography or the photography would have to be declassified, either directly or by some method of sanitization. The many interested men in these disciplines would not be satisfied with being given only the information derived from the photography, along lines analogous to selection of the information derived from T-KH photography that is included on an unclassified basis by the USGS as well as by military mapping services in medium and small scale map compilations.

c. In an operational stage of utilizing T-KH photography in the interests of a variety of disciplines and for the most part for presentation in map form, we run up against the need for specialized and

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presently classified and expensive equipment to handle the photography. In December 1965 DIAMC reported in reference e on the findings of a working group which was asked to examine the feasibility, methods, and costs of having civil agencies use KH photography in their map compilations and map revisions. This group noted that the most efficient arrangement would be to establish a central secure facility with special equipment and other capabilities in the USGS. This facility would serve the requirements of other civil mapping agencies. It is my feeling that a photo interpretation and analytical facility to meet the requirements of various disciplines as noted in previous paragraphs could be associated with the USGS facility or be served by it. Such a facility would, of course, not meet the desire of all who are interested in obtaining satellite photography for earth resource studies. In other words, I do not feel that a quick decision should be made for [redacted] to become the site for an operational facility for the purposes described in previous paragraphs without careful consideration of the findings of the working group which prepared the report that was submitted to the Bureau of the Budget in December 1965.

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5. Somewhat along these lines, it is interesting to know that the Association of American Geographers is intending to establish a commission on remote sensing and that this commission will undoubtedly discuss and take actions to develop at least a summer institute to train younger professional geographers in utilizing data obtained from remote sensors which the Association expects to have available from EROS and APOLLO vehicles possibly as early as 1969 or certainly in the very early 1970s. It is my feeling that commissions will be established, if they have not already, within other disciplines and that similar training will be undertaken on an unclassified basis in those disciplines. In other words, we can look forward to a large number of especially trained professionals in a variety of disciplines to be impatiently awaiting satellite photography and data from other sensors.

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