~~TOP SECRET~~

14 00062430

[redacted]

9 August 1968

MEMORANDUM FOR: Chief, Design & Analysis Division, OSP

SUBJECT : KH-4 System Requirements Study

1. The enclosed draft forwarded for your information and comments is my cut at restating the KH-4 search/surveillance requirement in WAC cell terms.

2. This new approach attempts to bring "order out of chaos" by the expedient of categorizing the requirements in several intelligence oriented groupings and applying a rationale to each grouping. It addresses the total collection requirement, i.e. search, surveillance, and MC&G. It can be useful in expressing the standing needs of the intelligence community and can be structured with additional flexibility for collecting against specific current intelligence problems.

3. I have met with [redacted] a total of six or seven times. The first of these meetings was an exposition of the types of OSP programs, methods, etc. available for use in this exercise. The subsequent meetings have consisted of his considering various draft proposals for restating the KH-4 requirements. To date Mr. [redacted] has contributed oral comments and suggested changes to these drafts. Repeated requests for "intelligence problems" have been addressed to Mr. [redacted] with negligible results.

4. [redacted] has expressed concern that the OSR elements may be offended if I attempt to "ram the OSP approach" down their throats. I wish to have it recorded that this is a proposed approach for restating the KH-4 requirement and until

the present KH-4 requirement is addressed by other elements within CIA or the Intelligence Community, this proposal is the only new approach in existence. Therefore, I conclude that until someone contributes an alternative approach it is better than the existing requirement.

[redacted]

[redacted]

This paper proposes a new method of expressing the KH-4 collection requirements. This method is designed to take advantage of the software capabilities developed for the operational control of the KH-4 system. Adoption of this method will allow for the integration of the intelligence problems into KH-4 collection language, and for the organized study and accounting of the intelligence requirements for the development of collection priorities.

This new method is based on the ability to maintain within a computer, on a world-wide (land mass) basis, all of the information necessary to organize, synthesize and analyze the intelligence requirements for translation into collection requirements.

In order to understand the method, a brief discussion of the fundamental vehicle used to organize the information is necessary. This vehicle, the WAC Grid System, was designed during WWII to define geographically all of the world areas on charts of one to one million scale. These WAC charts were subdivided into a 200 series at one or two hundred thousand scale which in turn was further subdivided into a 50 series at a one to fifty thousand scale.

The manner in which these charts were organized and identified allows for a simplified determination from the complete set of charts any 50 series by an eight digit identification number.

This WAC Chart System has been integrated into sophisticated working software programs. These software programs allow for the fine grain examination of the collection requirements as presently stated (i.e., six months and 12 months search). The KH-4 system will be operated against those requirements as expressed, evaluated, and interpreted by the software program, with the introduction of the [redacted]

Integration of the intelligence community requirements is possible through similar software programs. A proposed rationale for the interpretation of these intelligence requirements into collection categories follows:

COMIREX Intelligence Elements

Known targets or target groupings for which imagery is or may be required to develop foreign strategic force deployment, order of battle information, and force activity or status. In June 1968, there were approximately 6448 targets on the active world-wide collection target list. This target list has been converted to the WAC 50 cell system. A total of 2958 WAC 50 cells have been identified as containing this complete list. These calls can be defined as the world-wide "built up" requirement of interest to the U.S. Intelligence Community. The dynamic nature of intelligence can be addressed in the expression of intelligence requirements by this definition. Further breakdown by intelligence problem is possible: See Intelligence Problem Example, Attachment #1.

Special Intelligence Search Elements

There are additional areas of interest to the intelligence community, which through analysis, research, and study, require an examination for both the presence and absence of intelligence activity. Each aspect of this activity is equally important from an intelligence point of view. When it is estimated that some development will take place in the near future, knowing that the development has not yet occurred may be very important to our national decision makers. For example, it is well known

that the Chinese Communists are developing a ballistic missile system. Knowing that their ballistic missile system is not in an operational deployment status is important to the U. S. negotiators at the Vietnam peace talks in Paris. These search areas can be identified on WAC cell units with a detailed accounting for collection and accomplishment being maintained on each cell within the computer. Reporting of search area results could be expedited and accomplished in a semi-automatic mode.

Mapping, Charting, and Geodetic Elements

The MC&G elements must be identified. While this function is not always considered to be an intelligence function, it is the assigned responsibility of the intelligence community to obtain information for producing accurate maps, charts, and geodetic coordinates for U. S. Weapon System targeting. All of the WAC cells on a world-wide basis must have an indication of their MC&G status. This status would include an indication such as MC&G requirements satisfied, requirements not satisfied, Geodetic accuracy of the cell's information and those cells scheduled for recoverage. This particular requirement would be of great significance to the Department of Defense, Unified and Specified Commands and those elements of the intelligence community engaged in supporting U. S. Weapon Systems evaluation.

Foreign Earth Resources Elements

The intelligence community has need of information on the world-wide use of land in terms of national resources--e.g., forestry, agriculture, and water resources. Important information relating to crises, foreign aid, a nation's economic health and well-being can be obtained from this knowledge. Various departments of the U. S. Government have also expressed a requirement for this type of information.

Economic Intelligence Elements

The urban/industrial complex of any nation will be identified in this breakdown. Identification of the light and heavy industrial complexes, non-military related research and development establishments, chemical, metals manufacturing, fuels, raw material sources, etc., with all of their specialized transportation networks will be identified as a separate intelligence requirements. Priorities for this type of long-range intelligence information will be generated so that this type of requirement can compete favorably in the national collection of imagery.

Lines of Transportation and Communication Elements

The major lines of transportation and communications which are of interest to the intelligence community can be identified and specified on a very selective basis. Major rail, water, and highway can be identified as separate elements as well as the

electrical power lines, telecommunications networks, etc. Any general or special intelligence network problem adaptable to imagery collection can be confidently handled in this category. The major USSR railroad network has been generated in terms of WAC cells. This breakdown includes the cells representing a 50 nm Search ± 25 nm from the rail line.

Non-Productive Elements

In every nation there exists land which can be classified as non-productive from an intelligence point of view. A large swamp which has been a large swamp for several centuries, is a good example of this type of non-productive intelligence area. The following breakout of this type of elements can be made by applying the following rationale:

a) Identify the desolate areas in a foreign country in terms of desert, tundra, swamp, etc.

b) Identify the population distribution of each of the above elements to determine population density per square mile.

c) Determine if the element has been verified as a satisfied mapping and charting requirement.

d) Determine if this element contains a COMIREX intelligence target or is a required special search element.

When the element is found to be one which is located in a desolate land use area, has a low population density, has been mapped successfully, and does not contain a COMIREX target or lie within a Special Search area, then it is obvious that it can be classified with high confidence as a non-productive intelligence cell. The classification of this type of cell coupled with a very low coverage frequency will allow for a higher net application of imagery resources against cell which have greater intelligence potential.

Search Elements

The total Sino-Soviet Area can be divided and represented by approximately 49,000 WAC-50 cells. Once the 49,000 cells are sorted in the seven categories defined above, remaining cells could be categorized as search cells. These cells by virtue of elimination represent the areas in the USSR where it is probable that changes of intelligence community interest could take place.