~~TOP SECRET~~

HANDLE VIA
BYEMAN
CONTROL SYSTEM

~~(S)~~ NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.

THE NRO STAFF

2 September 1971

MEMORANDUM FOR GENERAL ALLEN

SUBJECT: COMIREX Guidance on Processing and Distribution of Film Readout-GAMBIT Photography

REFERENCES: a. WHIG 0739, 9 Jun 71, subj: Processing, Distribution and Feedback Cycles for the Film Readout-GAMBIT System.
b. BYE-12999-71, 3 Aug 71, subj: NPIC Investigation of Alternative Exploitation Concepts for the Film Readout-GAMBIT System.

In response to an NRO request, the COMIREX has provided some preliminary views on the majority of the questions posed in reference a. This COMIREX guidance is forwarded for your review and planning actions.

Two points should be made regarding the COMIREX guidance. First, the system requirements for imagery return times and delivery locations are largely based upon the NPIC study provided to you in reference b. Secondly, the COMIREX suggests consideration or a study related to direct readout in the Washington area. On this point, your comments would be appreciated as well as any other aspects of the guidance.

David D. Bradburn

DAVID D. BRADBURN
Colonel, USAF
Director

Attachment
BYE-2289-71, Cy 1A

10 00003069D

GAMBIT
HANDLE VIA
BYEMAN
CONTROL SYSTEM

~~TOP SECRET~~
EXCLUDED FROM AUTOMATIC REGRADING
DOD DIRECTIVE 5200.10 DOES NOT APPLY

CONTROL NO BYE-13044-71
COPY 1 OF 2 COPIES
PAGE 1 OF 1 PAGES

COMMITTEE ON IMAGERY REQUIREMENTS AND EXPLOITATION

GUIDANCE ON PROCESSING AND DISTRIBUTION OF FILM-READOUT GAMBIT PHOTOGRAPHY

REFERENCES: a. COMIREX-D-13.7/12, 15 June 1971*

b. USIB-D-46.4/30 (COMIREX-D-13.7/6) 16 July 1969; and USIB-D-46.4/42 (COMIREX-D-13.7/10) 24 February 1971

c. USIB-D-46.4/44 (COMIREX-D-13.7/11) 15 April 1971

1. The following are preliminary COMIREX views on questions posed in reference a. with respect to Film-Readout (FRO) GAMBIT imagery and are based on previous extensive studies related both to near-real-time imagery system requirements (reference b) as well as interim crisis needs (reference c). The discussion assumes FRO-GAMBIT "baseline system" parameters and concepts as provided to the Committee in May 1971. The proposed "baseline system" consists of two imaging satellites operating in near sun-synchronous circular orbits and each transmitting data twice a day to the primary imagery receiving station (RS) at New Boston, N.H. (BOSS) or to the back-up RS at Vandenberg Air Force Base, Calif. (COOK). Each receiving station will have two imagery reconstruction devices for each of two satellite-to-ground data transmission channels. Film prints of the reconstructed imagery would then be couriered to the Washington area. Although the Committee focused its attention primarily on the parameters specified for the "baseline system" as requested, special comment regarding the utility of a direct satellite-to-ground data receiving capability in the Washington area is considered in paragraph 9.

*NRO Staff Memorandum to Chairman, COMIREX, 14 June 1971 (BYE-12810-71)

Discussion

2. The overall objective in processing and initial exploitation of FRO-G imagery will be to provide the national executive and command authorities with intelligence derivable from the imagery as rapidly as possible consistent with the operational limitations of the system. Thus, the focus of initial photo-interpretation, analysis, and collection guidance will be in the Washington area, and the flow of data to the Unified and Specified (U&S) Commands and other non-Washington area consumers will be coordinated from there. Performance of complete photo interpretation and intelligence analysis functions at the two data receiving sites under consideration, New Boston and Vandenberg, appears clearly non-optimum and should not be planned.

3. Studies have shown that timely receipt of imagery, its authoritative interpretation, and the integration/correlation of the imagery-derived data with those from other sources are essential elements in the overall process of providing effective intelligence. This is particularly true during time-dominated crisis periods. Therefore, the processing and distribution cycle for a FRO-GAMBIT system should be designed and operated in such a way that any interruption of the flow of imagery through the system to the point of NPIC initial interpretation be held to an absolute minimum. Adherence to this principle and to the system design criteria that costs and operational sophistications be limited to those essential for the baseline configuration leads to the conclusion that, of the two receiving sites, New Boston should be primary and should normally receive the total system product for imagery reconstruction daily. The Vandenberg facility, in addition to its major mission of performing pre-launch functions, should provide back-up capability in the event of complete or partial failure at New Boston. This latter arrangement would have the added value of permitting substantially increased acquisition of photography during crisis periods. Equipment needs at the Vandenberg RS will be similar to those at New Boston. The precise division of effort between New Boston and Vandenberg receiving stations should be subject to continuing study as system development evolves.

4. The main imagery review activity at the receiving sites will be limited to evaluation of image quality, pointing errors, cloud cover, and engineering assessments of performance by the imaging satellites and the ground receiving and reconstruction equipment. We envision for these purposes, in addition to NRO operational needs, a team of six to eight photo-technician personnel requiring about 600 square feet of floor space. The team will need a secure telephone link as well as a secure high speed data link to Washington and the Satellite Test Center. During crisis periods, this team might be augmented by additional personnel qualified to conduct rapid substantive readouts related to certain types of analytical and targeting problems. Such a crisis augmentation team would require additional floor space, and a cost trade-off study is necessary before any final decision can be reached regarding the advantages of such augmentation relative to the establishment of more frequent imagery delivery to the Washington area during crisis periods.

5. As long as two imagery reconstruction devices are operating per satellite-to-ground data transmission channel, it is preferable that they obtain, respectively, one negative and one positive film print of the reconstructed imagery. In the event one reconstruction device fails, then production of the film print in the form of a negative will provide the greatest utility.

6. The timeliness required for imagery film deliveries will vary for the several customer categories. Under routine circumstances, there must be once-a-day delivery to NPIC of the original positive film prints for all imagery received at the ground station during the previous 24 hours. Determination of the optimum time of day for delivery is subject to further study. For initial planning purposes it is suggested that 0800 Washington time be utilized. To the extent possible, at least four second-generation duplicate-positives and three duplicate-negatives should be prepared by the NRO from the original negative for delivery in the Washington area at the same time as the original positive. However, the preparation and delivery of these copies must not cause delay in the delivery of NPIC copies. These additional copies should satisfy the initial requirements of highest priority Departmental customers for routine coverage. During crises, more frequent and/or incremental deliveries will be necessary.

7. In addition, there will be several other levels of customers for the reconstructed imagery, having differing needs for timeliness of film receipt. For instance, the U&S Commands and the Military Departments will have a need for imagery related to their areas of interest to be delivered by the fastest means possible. Also, highest priority customers may have a need for film duplicates in addition to the prints received in the initial distribution. The NRO should retain the original negative for use in satisfying the above requirements for film duplicates. It is anticipated that the JCS will shortly initiate a study to determine specialized DoD requirements for imagery under crisis conditions, with possible consideration of digital transmission techniques for both imagery and imagery-derived data, particularly as it relates to command and control needs.

8. With respect to collection guidance, the interface between the NRO and the user community will involve essentially the presently existing mechanism and relationships to insure unambiguous single-point guidance coordinated through COMIREX. Specific procedures will be developed to provide targeting and other guidance on time scales and in forms consistent with the established capabilities and needs of the collection system. In any case, the emphasis will be on unambiguous and direct guidance through established COMIREX channels. The requirements of the Military Departments, and the U&S Commands, will be combined with those of other agencies and daily (or more frequent) guidance will be provided to the NRO. It will also be necessary to actively maintain, through the ICRS, a comprehensive record of requirements in process and the status of accomplishments.

9. In light of the delays between sensing and initial photo interpretation inherent in the baseline concept described in paragraph 1 above, the advantages and disadvantages of establishing a receiving site in the Washington area should be studied in detail. Although this option presumably would involve a major initial expense, cost trade-off studies may well show it to be the most effective approach to meeting stated requirements. If major new construction and installation is required at New Boston, for example, it may, on balance, be cost-effective to use the funds alternatively for the construction of a receiving site in Washington.