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BYEMAN
CONTROL SYSTEM

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

THE NRO STAFF

August 21, 1969

MEMORANDUM FOR DR. HERBST, ODDR&E

SUBJECT: Comments on Verification Team Reports

This memorandum responds to your request for our review and comments on the "Team Reports on U.S. Capability to Monitor a Strategic Arms Limitation Agreement," BYE 1610/69, dated August 15, 1969.

We have reviewed the Team Reports and while we generally find that the reports reflect the capabilities and limitations of NRP systems, there are several general misconceptions which require comment and likewise several specific portions of the reports require alteration.

First, we believe that the capabilities of the new [redacted] readout system which is described in Technical Annex C are not adequately understood by each team. The system, as currently envisioned, will generally not provide imagery which is either of higher quality or more synoptic than is presently provided by the CORONA and GAMBIT systems or programmed to be provided by HEXAGON. The ground resolution of the system will be comparable to that of the HEXAGON system currently under development (approximately 2.5 - 3 feet) but not nearly as fine as GAMBIT [redacted] 13.5 inches). The system will, however, be more responsive to crisis coll[redacted]tion and could provide an increased number of target accesses. For the foreseeable future, however, the information content of a photographic image will far exceed that of a reconstructed electro-optical image. As you know, the responsiveness of a satellite in orbit is very severely constrained by orbit selection and climatic conditions and a readout system is not exempt from these constraints.

CORONA GAMBIT HEXAGON EARPOP [redacted]
/TALENT-KEYHOLE/
COMINT

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Our second general comment concerns the launching rates of NRP systems. The launching rates of NRP systems are inextricably tied to USIB requirements, budgetary pressures, and production capabilities. As you know, NRP systems are developed and operated solely in response to USIB requirements. Satellites are, as a category, a very expensive method of collecting intelligence information. The time to respond to a requirement to double or treble the launching rate depends upon the system under consideration, but can be as high as three years. If the U.S. capability to monitor a SALT agreement were to be based upon increased satellite launching rates, there must be a full understanding of the significant lead-times associated with the procurement of satellite systems.

Our specific comments:

Page A-19, paragraph 2. The statement, [redacted]

[redacted]

Page A-24, Footnote 1. The statement, "Such a ban would impact... additional consideration," does not adequately describe the effect of a ban on dispensing multiple objects in space. We recommend the following statement: "Such a ban would necessitate the complete stand-down of all photographic and most ELINT satellite systems currently operational or programmed."

Page B-28, lines 3-5. The statement, "Increased capacity of... and assessment" is too general. The specific systems considered feasible and applicable to the SAM upgrading problem should be addressed. It is not clear from the text whether the Team is referring to a feasible system or stating a requirement for a system which is neither programmed nor feasible.

Page B-36, Case B, paragraph 1. We do not concur with the idea expressed in the sentences, "We could probably tell...degrade system reliability." Our experience in the operation of test programs has in-

dicated that the test schedule or the system reliability are not hampered by telemetry encryption or communications security. We recognize that the current Soviet telemetry systems have an analog format and are consequently difficult to encrypt, however, we must consider the Soviets capable of developing coded and encrypted systems. High data rate coded and encrypted systems have been used in the U.S. space program for several years.

Page C-14, "Feasible Improvements." The statement, "Techniques for imaging...would be beneficial" is literally accurate; however, we do not consider such a system feasible within the foreseeable future. We recommend the statement be deleted.

Page D-13, "Programmed Collection Improvements and Feasible Collection Improvements." The separation of these two categories is desirable. [redacted] are programmed systems; very high resolution imaging systems are considered feasible but are currently not programmed.

We are prepared to discuss our comments with you in greater detail at your request.

LEW ALLEN, JR.
Colonel, USAF