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209. Space

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Date: JUN 27 2016

18 MAY 1978

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SGAS CHRON

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AUTHOR

MEMORANDUM FOR MR. NORMAN TERRELL, NASA, LI-15

SUBJECT: Review of May 8 Draft Shuttle/Salyut Concepts

(U) In general the paper is acceptable to us, particularly in view of the proposed rewrites of options discussed at the 12 May meeting. However, there are some points with which we do not agree.

(C) In the conclusion, pages 4 and 25, we cannot agree that all experiment concepts are conducive to safeguards to prevent the transfer of significant technology. We include in the transfer of technology the potential for the Soviets to acquire useful information of military and/or intelligence significance which would not otherwise be available. A DoD-wide review of the U.S. experiment concepts has identified several that we believe cannot be fully protected from transfer of significant technology. The Earth Observation and Astronomy experiment concepts cause the greatest concern. We are particularly uncomfortable with the large antenna, both with respect to the technology involved and with its inherent capability for surveillance of subjects of particular interest to the military and intelligence communities. Another area of concern is the precision pointing systems required in a number of the experiments which may be beyond the current capabilities of the Soviets. It is difficult to believe that the Soviets would accept a U.S. built system for installation on their spacecraft without preliminary ground inspection and testing, or at the very minimum without engineering details. They would require this, if for no other reason than safety, as would we for a Soviet system on the Shuttle. Such a requirement could provide a fine opportunity for technology transfer. Moreover, if a system were installed on Salyut, beyond our control for any length of time, the potential for technology transfer through Soviet inspection, photography or disassembly would be too high to disregard.

(C) With respect to the statement concerning category 4 concepts in the last sentence of page 8, we do not believe this is necessarily true. For example, as discussed above with respect to the Earth Observation experiment, the possibilities of the Soviets collecting military/intelligence information make this experiment clearly not in our interest.

(C) On page 12, Section 3.8., very long baseline radio astronomy is used as an example where the Soviets can make significant contribution

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to the category I concepts. Because this particular concept is one of those causing the most concern in DoD, it is recommended it not be used as the example in this section.

(S) As discussed above, we believe there will be opportunities for transfer of significant technology no matter how the mission is structured if systems of U.S. origin are left unattended aboard Salyut or if the Soviets require advance inspection and test of those systems. For this reason the discussion beginning on page 19 should be modified to recognize this fact. Moreover, it should recognize the potential for the Soviets to gain military and/or intelligence information during the course of the mission. A suggested modification is attached.

(U) The above comments reflect concerns which have developed as various DoD groups have reviewed the experiment concepts. We are currently compiling the specific comments on the concepts and will forward them shortly.

*1st Lt. Bixby, Capt. USN*

*for* Robert A. Greenberg  
Director  
Space and Advanced Systems

Attachment

CAPT Bixby/md OD(SAS)  
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(b) Page 19 - first sentence. Modify to read: "In general it should be possible to structure a Shuttle/Salyut mission to avoid the transfer of significant technology."

(b) Page 21. Add following after last sentence Section 3.D.:

"Where equipment or software involving a high technology area is installed aboard Salyut, particular care must be taken to prevent technology transfer. For example, special packaging should be a part of the installation to prevent inspection, analysis, photography or disassembly while it is left unattended by U.S. personnel aboard the Soviet spacecraft.

"Depending on the actual experiment, some concepts offer the potential to the Soviets to collect the experiment concept data which could provide information of military and/or intelligence significance. If these experiment concepts are selected, the actual experiments must be very carefully designed to prevent Soviet collection of these data. The Earth Observation and Astronomy concepts are particularly vulnerable to this problem."

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