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MEMORANDUM FOR CHAIRMAN, WORKING GROUP, FOR THE STUDY "THE UTILITY OF MILITARY CREWS IN SPACE"

SUBJECT: Comments on Phase One of the DoD Military Man in Space Study

(U) At this point I would like to share some of my tentative conclusions with you. There are three categories of missions for military man in space in the Shuttle era: 1) those which are a natural consequence of the presence of military man in space; 2) those which may evolve as important missions once we explore them further using the Shuttle; and 3) those in which it is unlikely that man will make a significant contribution. If we can agree on these categories (and, hopefully, the missions that fit them), we can provide important and necessary guidance for the remainder of the Study. Most important, we will avoid unwarranted effort on unattractive options.

Let me give you some examples of the contents of each category.

Category 1, Natural Missions: This category includes a) the use of the Shuttle as a space laboratory to develop new sensors, make fundamental measurements, etc.; b) the use of the on-board payload specialist to assist in the checkout, deployment and recovery of spacecraft; and c) the assembly and alignment of large structures on-orbit.

Category 2, Potential Missions: This category includes such missions as payload servicing and upgrading.

Category 3, Unlikely Missions: I believe this category includes most of the surveillance, intelligence and early warning missions. In space, man's only useful sensor of his external environment - his eyes - are generally inadequate. His sensors must be augmented by artificial devices. The analysis and interpretation of the device output can be done better on the ground. His limited ability to make decisions on what is important to collect is not a compelling reason for man in the loop. With current and future data handling capabilities, we can afford to collect too much data and sort them out on the ground.

Space warfare, while admittedly difficult to categorize, can be broken down into a series of discrete judgments on what to put in what category. I believe such missions will clearly be either Category 2 or 3 in the Shuttle era. Ultimately the utility of man in space to perform these missions will depend on the importance of man's ability to make on-the-spot decisions to attack or defend, fight his way to the objective and repair or circumvent damage to complete the mission. Such capabilities must be traded off

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against the increased complexity needed to support man in the spacecraft and the increased vulnerability introduced by his presence. In fact, these arguments are not pertinent to the Shuttle era but to the era beyond the Shuttle.

(U) I am worried that the Study may waste a lot of time on Category 3 missions and thus lose credibility. For example, so far I have not seen sufficient analyses to justify placing in Category 1 or 2 those missions I included in Category 3. I am especially concerned that dogmatic statements such as the inevitability of space conflicts, man personally gaining the high ground, etc. contribute almost nothing to a convincing rationale for man's role in these activities.

(S) I feel that man will be most useful in space when called upon to perform rather complex few-of-a-kind work, which allows him to use his eyes, his brain, and his ability to manipulate and orient objects efficiently. These are the Category 1 missions. I feel that man in space will not be useful for tasks which rely exclusively on artificial space sensors - elint, optical, etc. He also will not be useful in space for routine tasks, such as long term observation. When one combines these limitations with the limitations of the Orbiter, such as limited orbital altitude capability, limited orbital duration, and high operating cost, one arrives at the Category 3 missions. In these cases man can do the job better on the ground with a real-time data link from a satellite.

(SIGNED)

Robert A. Greenberg
Director
Space and Advanced Systems

RAGreenberg/md D(SAS)
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