BINGLASS

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE ASSISTANT SECRETARY

MEMORANDUM

January 5, 1967

MEMORANDUM FOR DIRECTOR OF RECONNAISSANCE, CIA

Attached is a draft of my proposed memorandum to the ExCom on BINGLASS. Your comments and suggestions are solicited. If possible, I would like to send an agreed-on version to assure prompt approval.

[redacted]

Alexander H. Flax
Director
National Reconnaissance Office

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MEMORANDUM FOR MR. VANCE
MR. HELMS
DR. HORNIG

SUBJECT: BYEMAN

On September 7, 1966, I visited the McDonnell plant to review in detail their proposal for development work on the BYEMAN concept. Their presentations and the discussions indicated a high quality technical effort across the spectrum of technology relevant to this concept. It should be recognized, however, that the DOD and NASA have under way technology programs spanning the same fields, although not so specifically pointed to this single configuration of flight vehicle and single class of flight trajectories.

The McDonnell work in the areas of technology pertinent to BYEMAN seems to stem from their participation in earlier Air Force programs related to the DYNASOAR program. McDonnell was the contractor on the ASSET Program -- a [redacted] scale-model flight test effort in support of DYNASOAR structural and aerothermodynamic technology. This technology has been advanced considerably since the inception of the DYNASOAR Project, and the hypersonic lift-to-drag ratio specifically has been advanced from 1.8 in

DYNASOAR to values of 3, both at McDonnell and at Lockheed (under an Air Force White Contract). The results of on-going Air Force technology programs have generally been made available to the aerospace industry except where contractor proprietary information was involved.

Therefore, it is apparent that the McDonnell efforts cannot be considered in isolation where technology is concerned. The specific vehicle design and mission analysis studies, on the other hand, are unique since no other contractor has focused major attention on this particular mission and this particular class of flight trajectories.

In addition to technological factors, I also reviewed the McDonnell cost-effectiveness studies and the vulnerability analyses which compared ISINGLASS with satellite systems. The cost effectiveness studies were being conducted in accordance with ground rules which did not correspond to current satellite operations. The NRO Staff has since worked with the CIA to set up ground rules for a cost effectiveness model which could be used by McDonnell to compare the ISINGLASS with current and planned satellite systems. [redacted] Although there is no firm intelligence information which would indicate that the Soviet

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with a full-scale development, and depending upon the degree to which final requirements might accord with those now being studied by McDonnell, it would probably be in the best interests of the Government to avail itself of the advantages of competition.

At the present time, I believe that only study and advanced technology efforts on the ISINGLASS concept are warranted. Study effort should be directed to the most significant areas for further evaluation of the concept. The technology efforts should be limited to those items having a critical bearing on system feasibility, basic characteristics and cost. In addition, it is essential to assure that technology efforts complement rather than duplicate the extensive NASA and DOD technology programs in the same general areas.

Since many uncertainties and doubts exist with regard to the future of this concept, it is essential that McDonnell be made fully aware that the program is still in the study phase, and will not necessarily lead to follow-on efforts of any kind. In particular, McDonnell should be cautioned against the premature build-up of a sizeable work force in anticipation of a full-scale development program. In view of the objectives of the study and advanced technology effort appropriate to this concept at this time, extensive large scale structural tests and comprehensive detail design need not be initiated.

The recommended NRO funding for a twelve month program is as follows:

1) System effectiveness studies including mission analyses, cost-effectiveness and participation in vulnerability analyses.

[redacted]043

2) Advanced technology program centered on the unique and critical aspects of this concept including additional wind tunnel tests, preliminary designs, major design trade-off studies, window, window cavity, and cooling design and testing, and selected structural and materials tests.

[redacted]

Since there are comprehensive DOD and NASA programs in hypersonic vehicle structures, materials and associated manufacturing processes, details of the McDonnell plans for structural element fabrication and test, as part of the advanced technology effort, should be reviewed by the CIA prior to approval to proceed. The NRO Staff will make available to the CIA details of the on-going DOD and NASA programs so that complementarity may be assured.

Upon approval by the ExCom, this program will be funded from the approved FY-67 and FY-68 budgets for aircraft research.