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THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

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5 MAR 1980

MEMORANDUM FOR THE DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS
AGENCY

SUBJECT: Advanced Warning System Technology

Attached is a copy of the implementing memorandum to the Air Force for the Advanced Warning Systems DSARC I which delineates the actions we should take with respect to upgrading the current DSP and laying the ground work for a follow-on system. I understand you and Bob Hermann have coordinated and accepted this approach to develop a plan for pursuing the technology of the mosaic sensor and processing system for missile warning.

We look forward to this joint venture and encourage your staff and the Air Force to work with [redacted] in S&SS in formulating your plans.

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Authority: EO 13526
Chief, Records & Declass Div, WBS
Date: FEB 22 2016

Signed
Gerald P. Dinneen
Principal Deputy

OSD
5 U.S.C. § 552(b)(6)

MR. [redacted] pjb/
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15 FEB 1980

MEMORANDUM FOR SECRETARY OF THE AIR FORCE

SUBJECT: DSARC I for Advanced Warning Systems (U)

~~(S)~~ The DSARC convened on 20 December 1979 to address a Milestone I review of a program to improve survivability and performance of our satellite-based, infrared, missile warning system (DSP). Of the five options presented by the Air Force, Option 2 has been selected as the most responsive approach to the immediate need to reduce the vulnerabilities of the current DSP system.

(U) The choice of Option 2 was based on the need to provide major improvements in survivability as expeditiously as is feasible within fiscal constraints and with as high a level of confidence as possible. While the potential of the mosaic staring sensor architecture (Option 4) appears promising, the technology does not appear to be sufficiently mature at this time to justify its selection. In addition, the incremental improvement in survivability of Option 4 over Option 2, with the projected additional costs, is not sufficiently attractive to warrant a system commitment to that option at this time, given the lack of maturity of the underlying technologies. Improvements in performance attributed to Option 4 are desirable to provide a level of survivable attack assessment but they represent an even higher level of technical risk and must be regarded as speculative and long term in availability.

~~(S)~~ Since the need for major survivability improvements in the near term is urgent, the Air Force should evaluate an accelerated version of Option 2, achieving IOC perhaps a year or so earlier. In addition, potential for increased periods of satellite autonomy (without ground commands) should be exploited to further enhance survivability and endurance. A detailed plan for implementing Option 2, including these considerations, should be provided to USDRE by 30 April 1980. The acquisition strategy should be based on the minimum economical buy of spacecraft so as to leave open the option for a cost-effective shift to a mosaic system in the not-too-distant future. Your plan should include a proposed date for Milestone II as well as an estimate for a DSARC III review.

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(U) A Test and Evaluation Master Plan should also be submitted by 30 April which considers appropriate participation by Air Force Test and Evaluation Center in test planning, execution, and monitoring.

(U) In consonance with the decision to proceed with Option 2, the Mosaic Sensor Program (MSP) task under the Missile Surveillance Technology Program should be terminated. In addition, the Air Force and DARPA should jointly formulate and present to USDRE, by 30 April 1980, a coordinated program plan for technology developments, experiments, and demonstrations in support of eventual mosaic sensor missile surveillance from space. This plan should include detailed and phased milestones, objectives, test description and funding requirements and should reflect the following guidelines:

- o (S) These efforts should address, for example, technical feasibility, producibility by multiple sources, and reliability and should culminate in decisive ground demonstrations of key elements (e.g., passively cooled multi-color focal planes integrated with signal processing in hardenable hardware having direct operational legacy) and should fully utilize the resources of previous Air Force and DARPA contractor efforts, as appropriate.
- o (U) The technology efforts should be scaled to provide a solid basis for reconsidering the start of engineering development of an operational staring sensor in a few years.
- o (S) Satellite flights undertaken in this area should provide a significant and direct legacy of operational capability to a mosaic follow-on to DSP.

OSD
5 U.S.C. § 552(b)(6)

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Clayton

MR. [REDACTED] yhh/13 FEB 80
OUSDRE(DS)

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OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301



RESEARCH AND
ENGINEERING

4 MAR 1980

TO: UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING
FROM: DEPUTY UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING (STRATEGIC AND SPACE SYSTEMS)
SIGNED
DONALD A. VOGT
BRIGADIER GENERAL, USAF

PURPOSE: Formally forward the implementing memorandum from the Advanced Warning System DSARC I to Director, DARPA. (Tab B).

DISCUSSION: The implementing memorandum from the Advanced Warning System DSARC I was addressed to the Secretary of the Air Force. However, this memorandum directs joint Air Force/DARPA action in the technology area. While the DARPA staff has a copy, it was not formally transmitted there.

RECOMMENDATION: That you sign the attached memorandum (Tab A) forwarding the implementary memorandum to Director, DARPA.

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MR. [REDACTED]
OUSDRE(DS) [REDACTED]

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