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By jsw Date 8/7/86
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CM-159-64
1 October 1964

(1001) 447147

MEMORANDUM FOR THE DEPUTY SECRETARY OF DEFENSE *cy 1-2*

Subject: MINUTEMAN Missile Reliability (U)

In response to your recent question concerning the reliability of the MINUTEMAN A and B Missiles, the attached analysis is provided.

(Sgd) EARLE G. WHEELER

EARLE G. WHEELER
Chairman
Joint Chiefs of Staff

Enclosure

Prepared by:
Col J. W. Harrell, USAF
Strategic Ops Div., J-3
Ext 78508/30 Sep 64

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THE JOINT CHIEFS OF STAFF
OFFICE OF THE DIRECTOR, THE JOINT STAFF
WASHINGTON D.C. 20301

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Gen Wheeler -

You may prefer to sign -
I'll be happy to, however. If Mr V.
has any questions, Gen McPherson
and Col. Harrell can elaborate or
clarify any points for him -

Dave.

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ENCLOSURE

ANALYSIS OF MINUTEMAN MISSILE RELIABILITY (U)

UNIFORM PREDICTION SYSTEM

1. The Uniform Prediction System (UPS) provides a standard method to establish Single Integrated Operational Plan (SIOP) operational reliability planning factors until valid test data on which to base these factors become available. The UPS provides for assignment of interim reliability factors of as high as .60 while individual missile systems progress through development and operational test programs. Specifically; the UPS assigns an initial reliability factor of 0.2 to missiles as missiles of a specific type initially achieve alert status. Under the UPS the factor is raised to 0.4 when the missile system is ready to start its Operational Reliability Test (OT); and if actual test results support the change, the factor is raised to 0.6 when the OT is within 90 days of completion. The UPS has been proved to be accurate as the examples in paragraph 3 below demonstrate.

THE OPERATIONAL TEST (OT) PROGRAM

2. Operational Test (OT) programs are designed to test the operational force on a representative sampling basis and thus develop valid reliability data for use in preparing the SIOP. The number of "sample" firings is determined by reference to the rules of statistical theory and is large enough to insure a reasonable level of confidence in the data developed from the tests. A 25-launch OT has been approved to establish reliability factors for the relatively small MINUTEMAN A force, while a 50-launch program has been approved for MINUTEMAN B in order to assure the necessary degree of confidence in reliability factors for this larger force of MINUTEMAN B missiles. The fact that the nuclear warhead must be removed and the requirement to move selected land-based missiles from their operational bases and transport them to the Vandenberg AFB test range, introduces some lack of operational realism.

3. The MINUTEMAN A is currently assigned a 0.6 under the UPS in anticipation of operational test completion in October 1964. In this program, 26 attempted launches have resulted

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in 22 launches of which 16 were successful in flight. Although these data are raw, and there are three more missiles which must be successfully launched to complete the MINUTEMAN A test program, the observed success rate computes to 0.61. This forecasts a final reliability of approximately .60. The MINUTEMAN B is currently assigned a 0.40 under the UPS based on the fact that this missile is presently undergoing a 50-launch operational reliability test program which is scheduled for completion in May 1965. To date, 23 attempted launches have resulted in 21 launches of which 15 were successful in flight. This indicates a current observed success rate of .65.

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WASHINGTON, D.C. 20301

J3M 217864
1 OCT 1964

MEMORANDUM FOR THE DIRECTOR, JOINT STAFF

Subject: Minuteman Missile Reliability (U)

1. As a result of certain information presented in the briefing for the President at Offutt Air Force Base on 29 September 1964, the Deputy Secretary of Defense asked for an analysis of the current reliability factors for Minuteman A and B missiles including the system used to establish the factors.

2. The enclosure to the attached, proposed DJSM contains the information requested.

3. It is recommended that the attached DJSM be approved.

A handwritten signature in cursive script, reading "John B. McPherson".

JOHN B. McPHERSON
Major General, USAF
Vice Director for Operations

Prepared by:
Col J. W. Harrell, USAF
Strategic Ops Div., J-3
Extension 78522

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