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THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

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#146



RESEARCH AND  
ENGINEERING

DECLASSIFIED IN FULL  
Authority: EO 13526  
Chief, Records & Declass Div, WHS  
Date: JUN 18 2015

03 AUG 1981

MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE (RESEARCH, DEVELOPMENT  
AND LOGISTICS)  
DIRECTOR, DEFENSE NUCLEAR AGENCY

SUBJECT: Satellite X-Ray Test Facility (SXTF)

I have reviewed the plans for the Satellite X-Ray Test Facility (SXTF) and have considered the requirements for testing against X-ray effects. I have decided that the SXTF program should be cancelled. My reason for this decision is that an investment of the magnitude of the SXTF to provide an X-ray test capability at the level of  $10^{-3}$  cal/cm<sup>2</sup> would be out of proportion to the remainder of our satellite survivability program.

While exposure to X-rays is a real possibility for satellites, I believe that it will be possible to achieve confidence in hardening through the implementation of design constraints, modeling, and component and subscale testing which will be at least of the same order of magnitude as the confidence we have in the ability of the system as a whole to survive comparable threats. However, it will be necessary to improve the presently used methods of hardening design and evaluation if we are to achieve this state. Therefore, DNA is requested to work with the Air Force to develop a plan to provide improved techniques and facilities for hardening and testing of satellites. DNA should also consider and report on the necessity for further development of high power X-ray sources. Further, after resolving any SXTF termination costs, DNA is required to identify candidate reprogramming actions, for consideration with other OUSDRE priority needs, to apply previously programmed SXTF funding to other high priority nuclear weapons related activities.

In closing, I should like to compliment the agency staff which has worked on the SXTF project; first, because they have helped to make the community aware of the problem, second, because of the significant advances they have made in the design and construction of high power X-ray sources, and third, because of the care taken by management to assure that OSD was always well informed and able to take appropriate action before large sums were expended.

James P. Wade, Jr.  
Principal Deputy Under Secretary of  
Defense for Research & Engineering

Office of the Secretary of Defense 5 USC § 552  
Chief, RDD, ESD, WHS  
Date: 18 JUN 2015 Authority: EO 13526  
Declassify:  Deny in Full: \_\_\_\_\_  
Declassify in Part: \_\_\_\_\_  
Reason: \_\_\_\_\_  
MDR: 13 -M- 4747

13-M-4747 *RT*

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OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

RESEARCH AND  
ENGINEERING

31 JUL 1981

COVER BRIEF

*Dr. Wade*

TO: UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

THRU: DEPUTY UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING  
(STRATEGIC AND THEATER NUCLEAR FORCES)

FROM: DIRECTOR, OFFENSIVE AND SPACE SYSTEMS *f.l.c. Cockburn*

*See my change in  
basic memo -  
No Allsup  
attached at all*

*[Signature]*

- (U) PROBLEM: To inform Defense Nuclear Agency (DNA) and the Air Force that the Satellite X-Ray Test Facility (SXTF) has been cancelled.
- (S) BACKGROUND: DNA has been employed since 1973 in the development of an SXTF which will test the hardness of satellites to X-ray effects, particularly the phenomenon known as system generated electromagnetic pulse (SGEMP). They have successfully demonstrated the technology to build X-ray sources which can irradiate full-scale, operational satellites to a level needed to assure system survivability in the active but untargeted nuclear environments that must be expected in general nuclear war. The facility was to be built in the Mk-I chamber at AEDC. DNA recently requested permission to proceed with the letting of contracts.
- (U) DISCUSSION: After detailed review, it appears that the SXTF, while a viable concept, is out of balance with the remainder of the satellite survivability program and that a degree of confidence in hardening is possible without the SXTF which is at least as good as our confidence in satellite systems ability to survive other threats.
- (U) RECOMMENDATION: That you sign the memorandum at Tab A advising DNA that the SXTF is cancelled and that they should develop a plan to improve SGEMP hardening techniques which does not require this facility.
- (U) COORDINATION:

ATSD/AE *L. Boyd WE* Date 28 Jul 81

Director, T&E *John J. Gordon* Date 27 Jul 81

Atch

Prepared by Dr. R. S. Ruffine/x78158/7-24-81/jo

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 Date: JUN 18 2015

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~~REVIEW ON 27 JULY 1988~~

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for the remainder of the Fiscal Year: (1) a Miniature Vehicle Flight Software Critical Design Review, in July; (2) a Captive Flight Test Missile Critical Design Review, in September; (3) a Carrier Aircraft Equipment Critical Design Review, in September; (4) a Test Support Equipment Design Review, in October, and (5) a Mission Control Critical Design Review, in July. I feel that perhaps all this terminology may have led to some confusion.

(U) The Air Force anticipated their funding problems and, having no reason to believe there was any controversy on this program, made a conscious decision to continue spending at the rate required to maintain the schedules for all of these Reviews, and the actual flight test dates. Because of the importance of the program they were confident that the reprogramming action would be approved prior to 15 July. At that time, ASAT funds will be expended and if the additional money is not reprogrammed, stop work orders will have to be issued on both the Vought and Boeing contracts; the Air Force estimates that approximately 800 people will undergo layoff, and the flight test and IOC dates will slip on the order of 9 to 12 months.

~~(S)~~ With regard to the second phase, the force structure inventory and the operational dates are presently an open question that we are considering. The number of interceptors and aircraft have never been firmly defined due to changes in perception of the projected number of threats (Soviet satellites) to be negated. We will be addressing these questions in the context of our overall strategic requirements over the next several months.

~~(S)~~ In summary, the \$24 million is necessary to maintain all the design reviews, hardware purchases, development, testing and check-out, to keep the development program on schedule. We regard the ASAT program as an important element of our national security posture and believe every effort should be made to achieve the technical capability as soon as possible. The appearance of such testing will be politically important with respect to the Soviets and the rest of the world and R&D residual assets will provide us with some capability for a limited exchange. Therefore, we respectfully request reconsideration of your decision.

Sincerely,

R. D. DeLauer

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Chief, Records & Declass Div, WHS  
Date: FEB 10 2016

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OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

COVERING BRIEF



RESEARCH AND  
ENGINEERING

19 JUN 1981

TO: UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

THRU: PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING *WHS*

FROM: DEPUTY UNDER SECRETARY OF DEFENSE (STRATEGIC AND THEATER NUCLEAR FORCES) *[Signature]*

PURPOSE: To transmit a reclama and clarification letter to Congressman Addabbo in regards to his denying the ASAT reprogramming action.

DISCUSSION: Yesterday I sent up a package with a point paper on the ASAT reprogramming along with the suggestion that Congressman Addabbo be called. I also included the letter from Congressman Addabbo and a draft of a memorandum that the Air Force was considering. Since then, Larry Lynn called Mr. Serafin (HAC staffer). Mr. Serafin indicated that the Committee had been misled by the Air Force and felt they ought to have OSD clarification and perspective on the problem in addition to an Air Force reply.

RECOMMENDATION: That you sign the letter at Tab A, and we will handcarry it over.

COORDINATION: None required. *[Signature]* OSD/LA  
19 June 1981

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Authority: EO 13526  
Chief, Records & Declass Div, WHS  
Date: FEB 10 2018

OSD 5 U.S.C. § 552 (b)(6)

Prepared by *[Redacted]* rp  
OUSDR&E(S&TNF/DS): *[Redacted]*  
19 June 1981

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