



~~TOP SECRET SENSITIVE~~  
DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING  
WASHINGTON, D. C. 20301

63859

3

16

4 APR 1973

M122058

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: Review of Comprehensive Nuclear Test Ban Issues (S) -  
INFORMATION MEMORANDUM

(TS) As you know, for over ten years the U. S. position with regard to the CTB has been that we would enter into such an agreement with the Soviets, if the treaty could be adequately verified. Due to technical uncertainties of detection and identification of underground nuclear tests, we have maintained that national means of verification must be supplemented by on-site inspection of suspicious seismic events. This position has been rejected by the Soviets and an impasse has resulted. For several years it appeared that if the Soviets reversed their position regarding on-site inspection, or if the groups favoring disarmament could convince the President to accept a weaker position on verification, a CTB Treaty could have been accepted by both sides in a very short period of time. However, there have been indications at the Conference of the Committee on Disarmament within the last few weeks that the Soviets are becoming increasingly concerned about PRC nuclear weapon development. This could result in the Soviets requiring, as a pre-condition for entering into a CTB agreement, that all nuclear powers agree to abstain from further nuclear weapon tests.

4/7/6  
4 April 73

(TS) In June 1971, the President directed a review of U. S. policy with respect to underground nuclear testing (NSSM-128). Although NSSM-128 was essentially complete by early 1972, the Executive Summary was never reviewed by the agencies concerned and has not been endorsed by the Verification Panel. In summary, the key elements of NSSM-128 were:

- (1) Almost everyone agreed that a threshold exists beyond which most earthquakes could be differentiated from nuclear explosions;
- (2) There was no unanimity of opinion concerning the strategic significance of lower level testing; and,
- (3) Many lacked confidence in our ability to verify lower magnitude tests even with on-site inspections because of the relatively large area of the USSR to be searched.

Consequently, it still remains an incomplete action.

Classified by DDR&E (SALT)  
EXEMPT FROM GENERAL DECLASSIFICATION SCHEDULE OF  
EXECUTIVE ORDER 11652. EXEMPTION CATEGORY 3  
DECLASSIFY ON TBD

~~TOP SECRET SENSITIVE~~  
DOD / DFOISR  
RESTRICTED DATA  
Copy ATOMIC ENERGY ACT, 1954  
Case AS. AMENDED  
T.S. No. \_\_\_\_\_  
Document No. 3

~~TOP SECRET SENSITIVE~~

I-35204/73

~~TOP SECRET SENSITIVE~~

(TS) Subsequent to the NSC study, the entire CTB issue was reviewed last year by the JCS. They concluded that a CTB would not be in the national security interests of the U. S. The JCS arguments against a CTB were presented in a memorandum from Admiral Moorer to Secretary Laird, with a recommendation that the position be conveyed to the President. This was done on March 22, 1972, with the Secretary of Defense taking no position (TAB A).

(TS) While the arguments of the JCS are still germane and their position entirely justified, it should be noted that the changing political scene evokes new and perhaps even more cogent arguments. Current developments in strategic planning, and those with which we may be faced in the foreseeable future, may well require new configurations and deployments of nuclear weapons, with a concomitant requirement for nuclear testing. For instance, the SAL agreement imposes quantitative limits on missiles but leaves open the whole question of the qualitative development of warhead systems. Should the present ABM system be frozen in its present configuration or should we reserve the option to make qualitative improvements as circumstances demand? Similar considerations equally affect our offensive warhead systems in the face of a presumably qualitatively improving Soviet ABM.

(TS) The Presidential mandate for a flexible range of strategic options forces us to consider systems with different nuclear characteristics and packaging. Technologies continue to be developed which provoke the re-examination of our present tactical nuclear posture. In particular, unattended ground sensors, precision-guided munitions, and terminal guidance systems can lead directly to requirements for advanced tactical nuclear weapon systems requiring underground tests for their development. The possibility of an MBFR agreement will have significant consequences for our NATO nuclear posture since hardware, including tactical nuclear hardware, will be necessary to compensate for manpower reductions and changing deployments. Our present tactical nuclear systems may be inadequate to these changing circumstances and hence lack both political credibility and military utility. Hence the development of alternative tactical nuclear systems requiring further testing will have to be considered.

(U) In the public and congressional domains, the CTB issue is invariably identified with seismic verification capability. Attention is always focused upon a threshold level, usually equivalent to a few kilotons in hard rock, above which all seismic events can be identified unambiguously as earthquakes or explosions. This is illusory. The Department continues to sponsor seismic verification research through DARPA, and the results

~~RESTRICTED DATA~~  
~~ATOMIC ENERGY ACT, 1954~~  
~~AS AMENDED~~

~~TOP SECRET~~

-2-

~~SENSITIVE~~

~~TOP SECRET SENSITIVE~~

to date indicate that several major problems exist which prevent such complete verification. Foremost among these is the real threat of deliberate evasion by one of several possible techniques. Research continues in DARPA with a view to mitigating these problems using high quality seismic data from new installations around the Eurasian land mass but at the present time definitive results are not available.

(TS) It should be emphasized that the telling arguments previously put forward, particularly by the JCS memorandum, have in no way lost their validity. Of these, the most important concern confidence in our strategic weapon systems. In the absence of a total international disarmament agreement, we are committed to a deterrent strategy. It is therefore essential that some reasonable percentage of our retaliatory weapon systems be capable of surviving on first strike by the Soviet Union. As Soviet nuclear weapon delivery systems become more sophisticated in accuracy, and general performance characteristics, we will have to modify our deterrent systems accordingly. For example, TRIDENT will require missile warheads which have been tested and proven reliable. The same will apply to the B-1 and any other strategic system which may be approved in the years to come.

(TS) For survivability/vulnerability considerations, major impacts from a CTBT prohibiting nuclear weapons effects testing would include:

(1) (b)(1)

(b)(1)

(2) Confidence (b)(1) survival level of new systems would be severely degraded;

(3) Kill levels for U. S. and USSR reentry vehicles could not be quantified.

(4) Deployment of optimized ABM warheads may be prevented unless the output characteristics are measured prior to the CTBT; and,

(5) The large uncertainties in the ground-shock environment for silos and shelter-based systems would persist.

~~RESTRICTED DATA~~  
~~ATOMIC ENERGY ACT, 1954~~  
~~AS AMENDED~~

~~TOP SECRET~~

SENSITIVE

~~TOP SECRET SENSITIVE~~

(TS) As to system reliability, each time a design undergoes modification, our confidence in the system will decrease unless nuclear tests can be conducted to prove that performance has not been affected. Over a number of years with no nuclear testing the full effect of extrapolations from tested designs could be much more than planned. If this were much worse for us than the Soviets - and if their intelligence discovers the asymmetry - the situation would be most unstable and dangerous for us.

(TS) Moreover, components degrade with time, and past experience during the previous moratorium on testing testifies to the fact that it cannot be taken for granted that performance has not been affected by interjecting replacements. (b)(1)

(b)(1),(b)(3):42 USC § 2162 (a) (RD);(b)(3):42 USC § 2168 (a) (1) (C)

(TS) Furthermore, without a nuclear test program it would be very difficult to maintain the interest of highly competent scientists and engineers in our weapons development laboratories. These individuals will inevitably drift away to other more active fields of endeavor. The impact on our defense program would be much more than simply a loss in R&D on nuclear warheads. These scientists and engineers have always been high among the leaders in our defense programs because of their special excellence and their interest in overall system performance. Unfortunately the Soviets would not suffer equally under a CTB since they could maintain tight control over their technical/scientific community.

(TS) In summary, in view of the JCS concern, and from my own experience, I believe that, on balance, a CTB would not be in the national security interests of the United States. As such, the above considerations should, in my opinion, be presented by DoD in future interagency and NSC discussions of a CTB in order that they be fully understood by all those in positions of responsibility.

/s/ John Foster, Jr.

John S. Foster, Jr.

Attachment  
as

Prepared by Dr. James P. Wade, Jr. X57840

~~RESTRICTED DATA~~  
~~ATOMIC ENERGY ACT, 1954~~  
~~AS AMENDED~~

~~TOP SECRET SENSITIVE~~


THE SECRETARY OF DEFENSE  
WASHINGTON, D.C. 20301

22 MAR 1972

MEMORANDUM FOR THE PRESIDENT

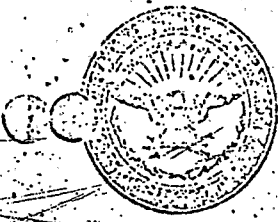
SUBJECT: Comprehensive Test Ban Treaty

The Joint Chiefs of Staff have expressed to me their concern with regard to the effect of a Comprehensive Test Ban Treaty (CTBT) on U.S. national security interests. I believe it is important that you have their views and am accordingly forwarding their memorandum.



Attachment

EXHIBIT TO THE PRESIDENT'S  
CONFIDENTIALITY REPORT



~~TOP SECRET~~  
Act 1954  
THE JOINT CHIEFS OF STAFF  
WASHINGTON, D.C. 20301

63562  
cy 11  
JCSM-109-72  
14 March 1972

MEMORANDUM FOR THE SECRETARY OF DEFENSE

Subject: Comprehensive Test Ban Treaty (U)

1. ~~(TS)~~ The current policy of the United States regarding support for a comprehensive ban on nuclear testing within the context of an adequately verified agreement has recently been reiterated by the Assistant to the President for National Security Affairs. Also, the Joint Chiefs of Staff recognize that official statements regarding a comprehensive test ban must conform to the US position. However, as directed by National Security Study Memorandum (NSSM) 128, a review of US nuclear test ban policy continues. It is, therefore, appropriate that the Joint Chiefs of Staff submit their views and military advice on this subject as this time.

2. ~~(TS)~~ The Joint Chiefs of Staff are concerned that continuing international and domestic demands, plus recently publicized but misleading information regarding the capability of the United States to detect low-yield underground nuclear tests, may create considerable pressure for early US acceptance of a Comprehensive Test Ban Treaty (CTBT) in the absence of an adequate verification.

3. ~~(TS)~~ While recognizing that preambular treaty commitments to seek the achievement of a comprehensive test ban have existed since signing the Limited Test Ban Treaty (LTBT) in 1963, the Joint Chiefs of Staff would point out that these commitments were made at a time when the United States was in a position of strategic superiority. Today, US strategic missile superiority has disappeared, and the erosion of US technological superiority has been constrained only through the intensive efforts of its nuclear weapon designers and laboratories and through underground test programs.

18  
Copy of 25 Copies each  
pages series "A"

~~TOP SECRET~~  
~~TOP SECRET~~

GROUP - 2  
Excluded from automatic  
downgrading and  
declassification

~~Restricted Data Atomic~~  
Act 1954

4. ~~(TS)~~ The Joint Chiefs of Staff have consistently emphasized the essentiality of testing all weapon systems. The US Armed Forces are committed to maintain a deterrent and warfighting capability across the spectrum of warfare, ranging from strategic nuclear offensive and defensive operations through tactical nuclear, conventional, and unconventional operations. Although it is highly preferred to test a system in its anticipated operational environment, the retention of the underground testing capability of the LTBT has provided the US Armed Forces with weapon systems upon which they can realistically rely. Although this effort has alarmed some elements of US society, there have been no significant adverse ecological effects to life or property resulting from the testing allowed under the LTBT. By retaining a strong technological capability and maintaining a viable underground test program, the United States has continued the development of sophisticated, cost-effective, and reliable nuclear weapon systems. Additionally, testing can assure the reliability of nuclear weapons which have been stockpiled over prolonged periods of time. Without the present underground testing capability, the US Armed Forces could not confidently exploit advanced nuclear weapons technology which offers many design improvements, such as (b)(1)

(b)(1)

(b)(1) For the foreseeable future, underground nuclear testing will continue to be mandatory, as weapon systems dependability can be confirmed only through such testing. Untested weaponry would erode confidence in US deterrent forces, thereby seriously jeopardizing national survival.

5. ~~(TS/RD)~~ The adverse effect which a CTBT could have on the US ballistic missile defense program, advanced reentry systems, advanced strategic offensive systems, tactical nuclear systems, and hardening programs for existing systems would be immeasurable. These weapon systems and programs are required to meet current and forecast military threats. Testing programs have permitted in the past--and will permit in the future--verification of theoretical analysis. For example, testing programs permitted the Atomic Energy Commission to test (b)(1)

(b)(1),(b)(3):42 USC § 2162 (a) (RD),(b)(3):42 USC § 2168 (a) (1) (C)

Without testing, the United States would be forced to adopt conservative designs for all new systems whose dollar and operational penalties increase with system complexity and passage of time. These penalties would include increased weight over optimum design, lowered reliability and safety, significantly

~~TOP SECRET~~

~~Act 1954~~

increased dollar and nuclear materials costs, greater sacrifice of new options, decreased assurance in severe nuclear environments and increased stockpile requirements to compensate for reduced assurance of survivability. (b)(1)

(b)(1),(b)(3):42 USC § 2168 (a) (1) (C)

6. ~~(S)~~ Lacking the challenge of advanced design and testing opportunities, serious consequences can be anticipated in the field of nuclear technology. The highly talented scientists who have contributed so much to the advanced weapons technology of the United States would displace to more attractive and stimulating endeavors, and qualified replacements could not be enticed to replace them in a stagnant field; the nuclear research laboratories, such as Lawrence Livermore Laboratory, Sandia Corporation, and Los Alamos Scientific Laboratory, would atrophy; and the US underground nuclear test facilities would lose their capabilities even in caretaker status. Remobilization of this expertise and materiel would be time-consuming, expensive, and ineffective in a crisis situation.

7. ~~(S)~~ It has been argued that a comprehensive test ban serves the national security interests by placing equal constraints upon weapons development by all parties. These constraints are real only as long as all parties adhere to the treaty. The opportunity exists under a CTBT for potential enemies to gain significant and unpredictable advantages (particularly by clandestine testing) which would be impossible to assess if the United States were not permitted to test.

a. Should potential enemies pursue a policy of clandestine testing, current and foreseeable technology does not provide a positive means of detecting low-yield nuclear detonations. The principal detection system of the United States is

(b)(1)

~~TOP SECRET~~

~~Restricted Data Atomic  
Act 1954~~

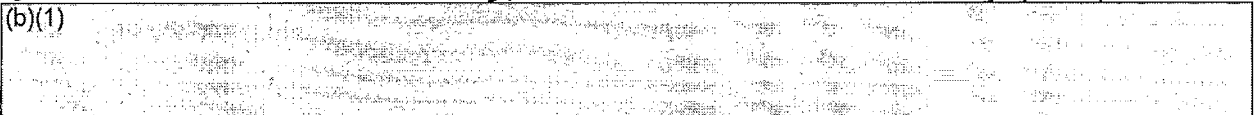


b. An assessment of the potential impact of a CTBT must include the Peaceful Nuclear Explosion Program, granted by the Nonproliferation Treaty and monitored by the International Atomic Energy Agency. The Peaceful Nuclear Explosion Program obviates the usual clandestine testing scenarios involving complex subterfuges as well as sophisticated seismic detection schemes. For example, a current Soviet PLOWSHARE project will require 250 nuclear detonations totaling 36 megatons, with a single maximum yield of 500 kilotons. The problems involved in policing such a mammoth project to insure that none of the devices being tested represents weapons development, e.g., the development of a "clean" atomic demolition munition, are of staggering proportion. There seems to be no reasonable way that the United States, by national means, or the International Atomic Energy Agency, by onsite inspections, could assure that a peaceful nuclear explosion was not masking or, in some way, serving weapons development.

c. If the United States agreed to cease all nuclear testing, public opinion and national priorities would ultimately dictate a decrease in both funds available for and level of effort in nuclear research and development. On the other hand, the Soviet Union or the PRC could sign a CTBT without making concomitant reductions in nuclear research and development efforts. Continuation of nuclear research and testing, even if not for the purpose of weapon development, would provide the Soviets or the PRC continuity in training of personnel, handling of devices, weapons effects, development of technical literature and professional interest, and other collateral benefits which would certainly enhance their nuclear weapon development capabilities. This would be facilitated by the closed, regimented nature of their societies. The logical result of this situation would be a disadvantageous imbalance of nuclear capabilities which would undoubtedly be prejudicial to the security of the United States.

8. (TS) Consideration must also be given to the collateral relationship of the Strategic Arms Limitation Talks. Any strategic arms limitation agreement will reduce US strategic flexibility and increase the importance of qualitative improvements to weapon systems. Of particular consequence is the Soviet advantage in missile throw-weight, which may permit the Soviets more flexibility than the United States in further improving their systems without requiring nuclear testing. Also, in view of possible Soviet abrogation of proposed strategic arms limitation agreements, ongoing weapons research and development programs, as well as testing, would become increasingly important.

(b)(1)



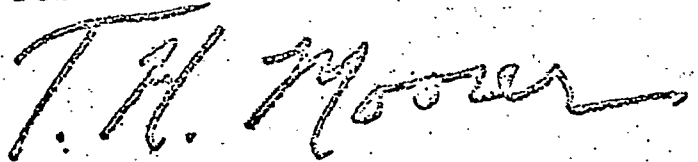
~~TOP SECRET~~

~~Restricted Data Atomic  
Act 1954~~

9. (S) The Joint Chiefs of Staff believe that the strategic situation today is significantly different from that which existed when US current policy on a comprehensive test ban was formulated and that fundamental US national security interests would be compromised by such a ban on nuclear testing in view of the fact that adequate verification behind the Iron Curtain is not achievable. Uncertainty inherent in future military threats also dictates that the United States should not surrender the freedom to conduct nuclear testing. In summary, the United States will be able to meet military threats only if it continues to test and develop the weapon systems deemed essential to its national survival. Consequently, the Joint Chiefs of Staff reaffirm their previous views that a CTBT is not in the national security interests of the United States.

10. (S) The Joint Chiefs of Staff request that you support their position against initiatives to negotiate a CTBT and that you express these views to the President, preferably as an agreed DOD position.

For the Joint Chiefs of Staff:



T. H. MOORER  
Chairman

Joint Chiefs of Staff

~~TOP SECRET~~

~~Restricted Data Atomic  
Act 1954~~