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EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL SECURITY COUNCIL
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MEMORANDUM FOR THE NATIONAL SECURITY COUNCIL

SUBJECT: U. S. Policy on Continental Defense

REFERENCES:
A. NSC Action No. 1842-d
B. NSC 5802/1
C. NSC Action No. 2151-f-(1)
D. Memo for NSC from Executive Secretary, subject: "Future NSC Agenda Items", dated April 12, 1960
E. NIE 11-8-60; NIE 11-60; NIE 11-7-60

The enclosed Discussion Paper on the subject, prepared by the NSC Planning Board, is transmitted herewith for discussion by the National Security Council at an early meeting.

JAMES S. LAY, JR.
Executive Secretary

cc: The Secretary of the Treasury
The Attorney General
The Director, Bureau of the Budget
The Chairman, Atomic Energy Commission
The Chairman, Joint Chiefs of Staff
The Director of Central Intelligence
The Chairman, Interdepartmental Intelligence Conference
The Chairman, Interdepartmental Committee on Internal Security

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DISCUSSION PAPER
on
CONTINENTAL DEFENSE

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DISCUSSION PAPER
on
CONTINENTAL DEFENSE
(Note 1)

I. QUESTIONS TO WHICH THE PAPER IS ADDRESSED

1. The advent of a ballistic missile era and of major Soviet capabilities to attack the United States with ballistic missiles dictates a reassessment of our continental defense policy. In the face of the increasing Soviet ballistic missile threat and the absence of foreseeable, effective anti-ballistic missile systems:

Question 1:

Should U. S. policy give increased emphasis to passive as compared with active measures for the protection of our retaliatory capability against ballistic missile attack? Moreover, if increased emphasis should be given to passive measures, what factors should be considered in determining those passive measures that would be most effective in the over-all continental defense effort?

Question 2:

Should our air defense effort be reoriented so that, following an initial ballistic missile attack, it would retain a capability to cope with follow-on manned bombers and non-ballistic missiles?

Question 3:

Should the United States revise its plans for survival of the military decision-making capability and its doctrine on response to attack and on response to warning of attack, in the light of decreased reaction time and in view of increasing U. S. emphasis on retaliatory ballistic missile forces?

Note 1. The scope of this paper is that of NSC 5802/1: "This statement of policy on 'continental defense' does not encompass all elements of U. S. or allied strength contributing to the defense of North America, but is limited as follows: a. Only those U. S. policies are included which are essentially defensive in nature, i.e., which contribute directly to the defense of the North American Continent and to the protection of that element of our retaliatory capability based on the North American Continent." (paragraph 1)

Question 4:

Should substantially increased emphasis now be given to protecting our population against fallout?

Question 5:

Are existing policies that provide for the continuity of essential wartime functions of the Federal Government in need of review?

Question 6:

Is there a clear need for vigorous research and development efforts to achieve a capability to destroy orbiting satellites and space vehicles?

II. SOVIET CAPABILITIES

2. The NIE notes that Soviet delivery systems for attack on the continental United States are changing importantly in character, and it implies the following periods: (Note 1)

a. The period is drawing to an end when the primary element in the threat to the United States is manned bombers -- over one hundred unrefueled BEAR's and refueled BISON's, possibly supplemented by refueled or one-way medium BADGER's, and by some short-range submarine-launched ballistic missiles.

b. The period of the early 1960's will represent a gradual transition from a largely bomber threat to one mainly composed of ICBM's. By the end of 1960, the estimated Soviet ICBM force will constitute a grave threat to the principal U. S. metropolitan areas. By 1961 it will present an extremely dangerous threat to SAC bomber bases, unhardened ICBM sites and command installations.

c. In a few years, then, the principal element of the threat to the United States will be ICBM's supplemented by 100 BISON heavy bombers and possibly some refueled or one-way medium bombers, increased numbers of submarine-launched ballistic missiles, and possibly by cruise type missiles.

3. Critical characteristics of the changing threat are:

Note 1. NIE 11-8-60, 28 July 1960, including relevant revisions to NIE 11-5-59 of 3 May 1960.

a. A maximum total travel time of about 30 minutes from launch of ICBM's compared to many hours for manned bombers (the above time for an average 5500 n.m. range). Also, the inability to recall ICBM's once launched.

b. An ICBM accuracy and yield presently adequate to destroy unhardened installations with one or a very few missiles. The number of missiles required to destroy hardened targets will be reduced substantially over the coming period as accuracy, yield and reliability are improved. (Note 1)

c. The development of improved ICBM's, with a solid or storable liquid propellant and all-inertial guidance by 1965: also during the 1965-1970 period there is expected to be refinement of guidance systems, improved warheads and decoys, and possibly drastically reduced radar reflection which might permit avoidance of detection even in the Ballistic Missile Early Warning System (BMEWS) beam. (Note 2)

4. There are additional technological possibilities which the Soviets may pursue, including:

a. High velocity, flat trajectory ICBM's with trajectories under the planned cover of BMEWS.

b. Advanced supersonic and later hypersonic cruise or glide vehicles, manned or unmanned, for possible weapons delivery (including air-to-surface missiles of increased range, speed and accuracy) as well as reconnaissance. (Note 3)

c. ICBM's launched from unexpected locations or following unexpected directions of flight, e.g., ICBM's travelling from the USSR around the South polar region, thereby avoiding the three presently-planned BMEWS radars.

d. Satellite based weapons systems for use against ballistic missiles and other targets, as well as for reconnaissance, communications, and jamming. (Note 4)

Note 1. In the case of the "best" 1 January 1960 Soviet missile (__ MT warhead, 3 n.m.CEP, and 75 percent reliability) 33 missiles would be required to give a 90 percent assurance of exceeding 100 psi at the target. In the case of the "best" mid-1963 Soviet missile (__ MT warhead, 1.5 n.m.CEP, and 80 percent reliability), 8 missiles would be required. In the case of a "possible" 1965-1970 missile with a __ MT warhead, 1.0 n.m.CEP, and 75 to 85 percent reliability, only 4 missiles would be required. See NIE 11-8-59 and NIE 11-2-59. (Data for the blanks are being furnished by a separate memorandum.)

Note 2. See paragraphs 28-29, NIE 11-60, 12 April 1960.

Note 3. See paragraphs7, 38-40, and 44 of NIE 11-60.

Note 4. See paragraphs 32-35, NIE 11-60.

III. U. S. CURRENT POLICIES, CAPABILITIES AND RELATED FACTORS

A. Defense Against Manned Bombers and Aerodynamic Missiles.

5. In the era in which the dominant threat was that of mass Soviet bomber attack, sufficient warning of a mass bomber attack was considered achievable to permit the launching of a significant portion of our strategic bomber force before it could be destroyed on the ground. The several hours available were sufficient for alerting the military forces, for the evaluation and decision-making process by key officials, and for transmission of the necessary communications. In addition, evacuation and relocation could reasonably provide continuity of government and contribute to protection of the civil population.

6. Reasonably reliable early warning, combined with limited bomber speeds, made it possible to plan a continental defense in depth on the assumption that greater attrition could be effected by employing a series of "active" defense elements in succession against an initial mass bomber attack. Predominant emphasis was placed on active defense measures (Note 1) to provide the protection of our counter-offense forces and our civilian population. Initial early warning permitted preparations to be made to launch the counter-offense forces; "area" coverage was provided by interceptor aircraft; and a "point" defense of potential targets was achieved using shorter range surface-to-air missiles.

7. An integral part of protection of the SAC retaliatory forces in this era has been the Positive Control Doctrine that permitted the launching of our bombers even on receipt of equivocal warning. At a later time the bombers either receive a "go ahead" signal or they must return to base. (The ability to recall a retaliatory force to its base is referred to throughout this paper as the "recallable" characteristic.) There is every reason to believe that this tactic can be employed in such a way as to provide a high level of confidence that some portion of the bomber force can avoid destruction on the ground.

8. The tactical warning system has weaknesses, particularly the lower detection probabilities at very low and very high altitudes, and the possibility of "end runs," as for example, by small numbers of aircraft on one way missions.

Note 1. In accordance with accepted practice, the term "active defense" is used in reference to those measures that involve an attempt to physically incapacitate or destroy a threatening objective; e.g., interceptor aircraft, surface-to-air missiles, anti-missile missile systems. The term "passive defense" embraces all other means of defense; e.g., warning and response to warning (including the launch of recallable aircraft), dispersal, mobility, hardening.

9. The logical extension of the means of defense against manned bombers, including long-range manned interceptors and interceptor missiles, could extend the coverage beyond the continental limits of the United States. However, because of the changing nature of the threat, the once-planned programs to provide for major growth and extension of the defenses against this threat have been largely discontinued or cut back. These included the long-range interceptor F-108, the replacement AEW aircraft, the Canadian CF-105, the full continental coverage of SAGE, the Super Combat Center Program, Bomarc-B and NIKE-HERCULES.

B. Defense Against Ballistic Missiles

10. The three general aspects of defense against ballistic missiles, namely early warning, active and passive measures, are somewhat analogous to those of defense against manned bombers. However, the means of accomplishment and the projected performance are vastly different.

Early warning of ballistic missiles

11. It is expected that the Ballistic Missile Early Warning System (BMEWS) will provide some warning capability in September 1960, when Site No. 1 is scheduled to become operational. This capability will be increased in June 1961 when Site No. 2 is scheduled to become operational. This system is planned for completion in 1963 and should then be capable of providing some 15 minutes of warning against a large-scale missile attack arriving over great circle trajectories from Soviet areas. The portion of the SAC bomber force that is maintained on a 15-minute ground alert basis can, because of inherent recallable characteristics, be launched in response to BMEWS warning or such other warning as may become available.

12. An additional means, now in the research and development stage, showing promise of supplementing or extending BMEWS warning is the satellite-borne infrared detection system (MIDAS). Other possibilities include aircraft-borne infrared detectors and over-the-horizon radars. (Note 1)

Note 1. MIDAS is expected to sense the launching of large boosters anywhere in the world with an average warning time of about 25 minutes. An operational system might be achieved as early as 1963. To date, there has been no successful system feasibility trial.

Infrared detectors carried in very high altitude aircraft patrolling the Soviet perimeter could detect launches from a substantial area of Russia and China with an initial detection of about 25 minutes before impact on U. S. targets.

A number of over-the-horizon radar techniques have been proposed or are under study. One of these, TEPEE, will undergo full-scale feasibility trials this year. The concept is attractive because of anticipated low cost, ease of installations, and possible early availability, if the technique proves feasible.

13. A Bomb Alarm system is currently being installed to provide notification of actual nuclear explosions occurring in the vicinity of retaliatory force bases. Successful operation of this system would make it possible to launch alert forces from surviving bases if the dispersion interval between initial impacting missiles and those for the other bases is sufficient.

Passive defense against ballistic missiles

14. While elements of the SAC alert bomber force could be airborne or could be launched on receipt of early warning because they are "recallable", ballistic missiles are "irrecallable". It is questionable whether U. S. response doctrine will permit the launch of "irrecallable" ballistic missiles solely on the basis of information received from a warning system. There are, however, a number of passive measures that can be employed to protect the U. S. retaliatory missile forces; e.g., dispersal, mobility, shelter or hardening, and concealment.

15. Dispersal: By physically dispersing our retaliatory weapons at a large number of sites, each remote from the other, it may be possible to confront a potential attacker with a situation in which he does not possess a sufficient number of attacking weapons to permit him to calculate with high confidence his ability to destroy all such installations before an unacceptably large number of weapons are launched in retaliation. The relative advantages of dispersal can be calculated on the basis of reasonable estimates of the enemy's strike capability.

16. The present distribution of SAC bomber bases was made to achieve dispersal in the era of threat of manned bomber attack. The number is so small as to provide protection, by dispersal alone, only in the very early part of the era of ballistic missile threat. Current plans call for dispersal of a significant portion of the "fixed" U. S. missile installations.

17. Mobility: This technique combines the advantages of dispersal with those that result from either continual or intermittent motion of the retaliatory weapons. By such means it is possible to deny a potential aggressor the ability to predict the physical location of all retaliatory weapons. For example, a limited capability to mount an airborne alert in periods of international tensions is being provided; Polaris is a mobile system; and current plans call for part of the Minuteman force to be rail-mobile.

18. Hardening: This concept involves providing the retaliatory weapon with a protective shell in order to decrease its physical vulnerability. A portion of the U. S. retaliatory missile force will be located in hardened sites. There is no hardening program for manned bombers. It should be noted that the true "hardness" of a missile system

is limited by the extent to which existing types of communications can be hardened. Hardening can also be used to protect the civil and military population from direct weapons effects as well as from radioactive fallout. The relative costs and effectiveness of such measures have been extensively studied. (Note 1) The case for increased emphasis on fallout shelter is considered in Question No. 4.

19. Concealment: It is possible, as in the case of the POLARIS submarine, to couple mobility with concealment and thereby decrease weapon vulnerability over that achieved by mobility alone. In the case of MINUTEMAN, it may be possible to couple mobility and hardening with concealment. In general, however, it is extremely difficult to conceal fixed military installations on the North American Continent.

Active defense against ballistic missiles

20. Nike-Zeus is the major active defense system against ballistic missiles now under research and development. It is to be a terminal area intercept system in that it must be physically located in the target area in order to intercept a ballistic missile in its terminal phase. The Nike-Zeus system would be soft (2-3 psi), and it could be saturated by feasible attacks. The system probably could be decoyed by relatively simple techniques. The maximum radius of coverage would be about 75 miles and this radius might be reduced to about 15 miles in the presence of reasonably effective decoys.

21. A system test is scheduled in the Pacific in 1962. If production were begun now, the earliest date on which an initial operational deployment could be achieved would be approximately 4 years. The cost of an operational deployment of 70 batteries at 27 defense complexes by the end of FY 1968 would be about $9 billion. No program has been approved for the production of an operational Nike-Zeus.

22. In addition to Nike-Zeus, advanced research into techniques and components for active anti-ballistic missile defense is underway at about $100 million a year primarily under Project Defender. At this time, no operational system based on this program appears feasible within the next 10 years barring unforeseen technological "break throughs".

C. Defense Against Satellite Systems

23. Currently the United States has a limited capability to detect satellites that pass over the United States. By fully exploiting our

Note 1. "Report to the National Security Council by the Special Committee on Shelter Programs", 1 July 1957 (Memo for NSC, "A Federal Shelter Program for Civil Defense," dated July 2, 1957). "Survival of Population Following a Massive Nuclear Exchange" prepared for the National Security Council by the Stanford Research Institute, 1 July 1958 (Memo for NSC, June 27, 1958).

existing and planned high-power radars, it would be possible to determine orbits at altitudes up to about 400 miles in a low-density environment within a week or so after launch.

24. It appears feasible to develop a system which would detect and determine the orbit, within 12 hours after launch, of all satellites that pass over the United States with altitudes up to 3,000 miles. This system should have a reasonable traffic-handling capacity.

25. Studies are underway on the feasibility of satellite inspection and destruction systems. Research and development to achieve a co-orbital capability appears promising. It appears that, with our present knowledge of bomb fragmentation and kill mechanism, the development of a destruction capability for such a system poses no critical technical problems.

IV. DISCUSSION OF QUESTIONS

> Question 1: Should U. S. policy give increased emphasis to passive as compared with active measures for the protection of our retaliatory capability against ballistic missile attack? Moreover, if increased emphasis should be given to passive measures, what factors should be considered in determining those passive measures that would be most effective in the over-all continental defense effort?

26. As previously indicated, the United States will not have an "active" anti-ballistic missile capability within the next 5 years, and in the 1965-1970 period the best that could be achieved would consist of a Nike-Zeus type system with minor improvements. Therefore, for the next 5-10 years, protection of the land-based retaliatory forces against Soviet missile attack must depend on early warning and an appropriate response thereto, coupled with such passive measures as will increase the ability of those forces to survive or will increase the Soviet force requirements for launching an attack. (It should be noted that for the next few years, the United States will not have assurance of obtaining early warning against ballistic missile attack.)

27. The vulnerability of SAC bombers to ballistic missile attack might be decreased by dispersing these aircraft to a number of existing airfields. However, this advantage has to be weighed against costs and possible degradation of operational readiness resulting from the adverse effects on command and control, ground support, maintenance and manning. Provision is also being made for a capability to mount an airborne alert of a portion of the SAC bomber force in periods of international tension. The extent of, and the benefits accruing from, such an airborne alert should, however, be weighed against its cost and against the adverse effects on ground support, maintenance and manning.

28. The dispersal of retaliatory weapons can impose unacceptably large force requirements on a potential attacker. However, in considering particular dispersal programs, account needs to be taken of their possible effects in increasing wartime hazards to the civil population. Dispersal of military aircraft to civilian airfields serving large cities could, for example, result in an increased level of damage to the civil population and the industrial base if an aggressor chose to attack all these targets. Similarly, dispersal of missile bases could either increase or decrease the danger to the civil population, depending upon their location. Therefore, dispersed retaliatory installations should be located as far as possible from centers of population.

29. Hardening adds to our deterrent posture since, to produce a given level of damage, a larger number of weapons must be employed against a hard target than would be required against a soft target. Although it is conceivable that hardening could result in an increased hazard to the civil population in the vicinity of a hardened target under attack, an enemy could, with the same total number of weapons required to destroy a hard site, target a larger number of soft installations and cities and the over-all damage to the civil population might be still greater.

30. Mobility of the retaliatory force would greatly complicate the problems of the aggressor without necessarily increasing the hazard to the civilian population. Mobility at sea might have the advantage of drawing fire against retaliatory forces away from Continental United States.

31. An extensive study has been conducted by the Weapons System Evaluation Group in the Department of Defense to ascertain the cost/effectiveness of the Nike-Zeus system. Based on the conclusions of this study, it would appear to be less costly and far more effective to increase the probability of survival of U. S. retaliatory forces by deploying additional retaliatory missiles in hardened sites than to attempt the protection of a lesser number of missiles with a Nike-Zeus anti-ICBM system. According to this study, this conclusion appears to be valid, even if it is assumed that there exists some, as yet undiscovered, adequate decoy discrimination techniques. The study further indicates that the disparity in cost/effectiveness would be still greater if the comparison were made between Nike-Zeus and the deployment of additional mobile missile forces.

32. In view of this situation, there is a clear need to revise that portion of existing policy for Continental Defense which places predominant emphasis upon measures to improve our active defenses as compared with--but not to the exclusion of--passive defense measures. Such revision should not prejudice continuation of those active defense measures that can significantly contribute to the protection of our effective nuclear retaliatory power; e.g., active elements of the air defense system. Moreover, a vigorous research and development program

directed toward achieving an effective active defense against ballistic missiles continues to be required. However, since it is questionable whether any adequate AICBM system could be developed and deployed within the next 10 years, it seems imperative that recognition be given in policy to the necessity for increased emphasis on passive measures for the protection of our retaliatory capability.

33. It should be noted that the measures to provide for passive defense of the retaliatory forces are interrelated with the characteristics of the various retaliatory weapons systems themselves. Accordingly, the vulnerabilities and response characteristics of retaliatory weapons should be considered among the other factors in determination of the "mix" of the retaliatory forces.

Question 2: Should our air defense effort be reoriented so that, following an initial ballistic missile attack, it would retain a capability to cope with follow-on manned bombers and non-ballistic missiles?

34. The present air defense system would be of questionable value following a missile attack. This results primarily from the fact that the present "active" elements of the system are almost totally dependent on the existence of a highly centralized system of close control. The "hardening" of vital elements of this control system, i.e., the Super Combat Center Program, would not provide a solution to the problem of vulnerability. The system could not be made operational until the United States is well into the missile era at a time when the Soviets could be expected to possess a large number of ICBM's. Even assuming that the centers could be hardened, there are practical limitations on achievable hardness for vital communication links. The "soft" data inputs, i.e., the radars, and the "soft" air defense weapons currently in use would also be seriously degraded by a missile attack. Finally, an air defense system designed primarily for defense in depth against an initial mass bomber attack is not equally suited to a period when the initial attack would be by ballistic missiles. In the latter situation, the air defense system needs to be designed primarily to cope with follow-on bomber attack.

35. It would, therefore, seem desirable to consider modification of the existing air defense system in such a way that, even after absorbing substantial damage from a ballistic missile attack, sufficient capability would remain to deny the enemy unopposed access to continental U. S. airspace. If practicable, over-all system vulnerability could be decreased by relocating those SAGE Direction Centers and interceptor squadrons that are now located at SAC bases. Some fraction of the manned interceptors could be provided with improved radars and fire control equipment so that they could function effectively after ground control ceased to exist. If the existing manual control capability were

retained in standby status, instead of being eliminated as SAGE Sectors become operative, other manned interceptors could be employed for air defense after SAGE centers were destroyed.

36. This discussion suggests the need for a reexamination of present air defense concepts to take into account the necessity for retaining a capability to cope with follow-on attacks by manned bombers and non-ballistic missiles, following an initial ballistic missile attack.*

> Question 3: Should the United States revise its plans for survival of the military decision-making capability and its doctrine on response to attack and on response to warning of attack, in the light of decreased reaction time and in view of increasing U. S. emphasis on retaliatory ballistic missile forces?

37. The U. S. retaliatory capability depends on its ability to survive until the decision to counterattack. In order to protect fully our ability to use the retaliatory capability, Continental Defense plans and programs must ensure the survival of the decision-making machinery and the means of communication of the decision to the surviving retaliatory forces, in addition to providing for the survival of an adequate number of the delivery vehicles.

38. The existing capability to provide early warning of mass bomber attack appears to be adequate. Even though the probability of initial mass bomber attack is decreasing with time, the United States must maintain this early warning capability in a high state of operational effectiveness so long as the Soviets possess a significant long-range bomber force. This tends to inhibit Soviet employment of these weapons. It should be realized, however, that our early warning system can be avoided by a bomber attack of small scale. The desirability of expending resources for improvement of the present system to provide early warning against a small number of aircraft must be weighed against the relative probability of such an attack and against the effect of such an attack on the over-all retaliatory capability of the United States.

39. Thus, in the era of threat of manned bomber attack, without the ballistic missile threat, the available tactical early warning provides adequate time for decision-making and launch of retaliatory forces. Equivocal early warning could serve as the basis for launching the "recallable" SAC alert force and for the initiation of the attack

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* Defense and JCS consider that this matter is constantly under study in the Department of Defense.

decision process. Decision-making officials could be alerted and placed in contact with one another either by assembly or by pre-arranged communications so that initial warning information and subsequent developments could be evaluated and a decision made in time to permit positive strike instructions to go out to the SAC bomber force already on its way and out of danger of destruction on its home bases. Even under conditions of enemy avoidance of the early warning lines, the tactical warning interval provided by the contiguous zone, and the combat zone elements, and the travel times of enemy aircraft in getting to deep interior SAC bases, appears sufficient to permit the saving of adequate bomber retaliatory forces and the decision-making process.

40. The United States does not today possess a capability to obtain early warning of a ballistic missile attack. However, a capability is being achieved by a high priority program -- BMEWS -- as indicated in Section III-B. It is evident, therefore, that some capability to provide 15-minute warning of mass ICBM attack will soon be available and that this may later be extended to as much as 25 minutes.

41. Thus, with the advent of ballistic missile threat, the achievable total warning interval becomes severely limited. This limited warning time is adequate to permit launch of the recallable SAC alert bombers, thereby preventing their destruction on the ground. It is inadequate to permit the decision to release aircraft and missiles to targets prior to the impact of enemy missiles on the United States. Therefore, the decision-making process and the means for the communication of the decision to the strike forces must survive the initial missile onslaught.

42. Until such time as BMEWS can be expected to provide a 15-minute warning interval of missile attack, the limited initial Soviet ICBM capability might destroy the seat of government and an increasing fraction of the retaliatory forces. The only indication of attack would be provided by the planned bomb alarm system. The number of SAC bombers on ground alert saved under such conditions depends critically on currently unknown factors including the dispersion in the arrival time of the Soviet missiles, the number of missiles actually arriving, and their accuracy in hitting particular targets.

43. As our U. S.-based retaliatory capability becomes predominantly ICBM's we tend to lose the benefit of the recallable feature of manned aircraft. It is, of course, essential that the United States avoid the possibility of irrecallable launching of strike forces based on the erroneous conclusion that an attack is under way. It appears questionable that BMEWS or any other warning system can produce such high confidence early warning as to result in a U. S. decision to launch irrecallable retaliatory missiles before bombs have detonated. Therefore, a reliable bomb alarm system is essential to provide early positive information of actual missile hits.

44. Nonetheless, tactical warning of attack can be extremely important during the period when our SAC retaliatory forces consist largely of bombers and of fixed vulnerable missiles that require a significant "count-down" period. Although the planned BMEWS can provide valuable time for launching SAC bombers and for bringing these missiles to an adequate state of readiness for firing, this warning will be of little value unless bombers can be launched and missiles can be fired before they are themselves destroyed. Currently CinCNORAD is charged with the responsibility for evaluating all warning information in order to determine whether an attack is underway and for transmitting this information to Washington, D. C. to initiate the decision-making process. It is questionable whether 15-25 minutes of warning time will be adequate to: (a) apprise the necessary officials of the situation; (b) permit a decision that sufficient evidence is received that an attack has actually occurred; and (c) communicate a decision to undertake retaliatory strikes. There is no assurance at present that, following the detonation of the missiles in the initial attack, there will remain a capability to authorize the use of and employ effectively those retaliatory weapons that may have survived.

45. It appears that an a priori response doctrine would increase the probability that our surviving missiles could be launched and our manned bombers released to target even though the initial attack destroyed the seat of government and other vital links of the planned system for command and control. An a priori response doctrine might be one that permitted the launch of the surviving missiles by subordinate commanders in the event more than a given number of the missile and bomber bases actually received hostile missile hits. Technically, the information that this had occurred could be provided by a bomb alarm system.

46. On the other hand, we should not rely exclusively on an a priori response doctrine that would permit decentralized decisions to attack the Soviet Union. The range of possible circumstances of outbreak of a thermonuclear war is so large and complex that all possible important eventualities cannot be foreseen and provided for by doctrine. We should preserve for ourselves, if at all possible, the option of more than one retaliatory response. For example, if there is reason to believe that the Soviets have not spent their entire force in the initial attack--and they may not in order to be able to blackmail us--it is believed by some that we may wish to have the option of altering our retaliatory attack, or we may find it to our advantage to hold our forces in reserve to use them as a threat, to conclude the war, or to deter follow-up attacks.

47. It has become increasingly evident that we must achieve a survivable system of command. It is also recognized that, as missile yield and accuracy improve, hardness alone cannot provide the desired level of survivability for the command posts. A combination of hardness and achievable active missile defense may prove more effective. In

connection with the problem of how we can most effectively obtain a "decision time" adequate for the missile age, it would be desirable--depending on the outcome of currently-planned field tests of Nike-Zeus--to consider the possibility of employing a limited number of AICBM weapons for point defense of two or three vital centers of command.

48. In sum, there is need for a thorough study of capabilities, plans and programs to ensure the survival of the decision-making machinery and of reliable means of communication of the decision to the surviving retaliatory forces on land, at sea, and in the air, within the time dimensions of a surprise ballistic missile attack. As an essential part of this study, attention should be given to the preparation of a response doctrine that is not dependent on the survival of the seat of government and other vital links of the planned system for command and control.*

* Defense and JCS consider that these matters are constantly under study in the Department of Defense.

Question 4: Should substantially increased emphasis now be given to protecting our population against fallout?

49. Existing policy for the protection of the population against radioactive fallout is stated in NSC Action No. 1842-d. This action approves the "concept of fallout shelter" on the basis that "improvements in active defenses can give reasonable promise, together with fallout shelters, of limiting estimated civilian casualties, in the event of nuclear attack on the United States, to a level which will permit the United States to survive as a nation and will in no case be greater than a similar casualty ratio in the USSR." Since it appears that an effective active defense against ballistic missile attack cannot be expected within the next ten years (Note: See paragraphs 20-22), it seems advisable to re-examine this policy to determine whether substantially increased emphasis should be given to fallout shelters.

50. The extreme vulnerability of populations to fallout has been shown in various studies. (Note 1) Fallout shelters appear to be far more effective than any foreseeable anti-ICBM system for protecting the

Note 1: WSEG Report No. 45 includes a study of the effect of various enemy targeting doctrines, attack levels and fallout shelters on the total resulting casualties in the United States based on present population patterns (casualties from indirect effects such as disease, starvation, genetic effects, etc., are excluded). Conclusions of this study follow:

	TOTAL YIELD IN MEGATONS		
(Millions of deaths)	1000	2000	5000
A. Weapons delivered uniformly at random over the entire U. S. (the results of such an attack resemble those for an attack with major emphasis on retaliatory bases):			
Without shelters	58	99	162
With shelters	7	14	45
B. Weapons delivered in proportion to the population:			
Without shelters	97	130	160
With shelters	27	49	86
C. Targeting to maximize population fatalities:			
Without shelters	106	140	171
With shelters	41	61	92

population against the effects of a nuclear attack. (Note 1) Even if NIKE-ZEUS were made operational, it would have a kill altitude as low as 40,000 feet and a range of effectiveness as low as 15 miles. Kill at such low altitudes, especially if the high-yield enemy warhead were also to detonate, would severely damage the exposed population and structures and the active defenses themselves. (Note 2) Active protection from blast and other direct effects of nuclear attack would be of little overall advantage if the persons saved from death by blast and fire were subsequently to die from fallout.

51. Present policy calls for a "low-key" approach to shelter promotion, but in the absence of increased emphasis by the Federal Government it appears unlikely that a comprehensive shelter system will be completed in the near future. A recent survey by the House Committee on Government Operations indicated that only 1,565 shelters had been built in the United States during the last two years. This count is probably incomplete, but the implications of the survey are not seriously questioned.

52. Additional factors involved in this situation are exceedingly complex and difficult to grapple with objectively because most of them are based on considerations of public psychology, both here and abroad. In 1958, when the present concept was adopted, it was deemed important that the concept be carried out without (a) creating public over-confidence in shelters or a public passive defense psychology; (b) causing Congressional and public reactions prejudicial to higher priority national security programs; (c) losing the support of our allies or causing them to adopt neutralism; or (d) presenting the posture of the United States as that of a nation preoccupied with preparations for war.

Note 1. The following estimates of deaths from WSEG Report No. 45 indicate the relative efficacy of a perfect 75 n.m. anti-ICBM system and a fallout shelter program in protecting the population against the effects of nuclear attack in which weapons are delivered uniformly over the United States (the results resemble those for an attack with major emphasis on U. S. retaliatory bases):

	TOTAL YIELD IN MEGATONS		
(Millions of deaths)	1000	2000	5000
No shelters, 75 n.m. perfect AICBM	32(18%)	68(38%)	126(70%)
Shelters, no AICBM	7(4%)	14(8%)	45(25%)
No shelters, no AICBM	54 (30%)	97(54%)	162(90%)
Shelters, 75 n.m. perfect AICBM	2(1%)	4(2%)	25(14%)

Note 2: A Department of the Army study shows that for Soviet attacks of 200-400 warheads with no undiscriminated decoys, a $10 billion NIKE-ZEUS program would limit direct damage to 54 metropolitan areas to between 16% and 26%.

53. Some believe that there was no clear determination in 1958 as to whether a more vigorous approach to shelter-building would have these deleterious effects, and there appears to be no evidence which would place the matter beyond debate at the present time. It is clear, however, that the matter of the national and international psychology is important to a resolution of this issue, and an attempt will therefore be made in the following paragraphs to clarify the alternative ways of looking at the problem.

54. Proponents of a substantially increased emphasis on fallout shelters regard provision of such shelters for the civilian population as necessary, both to ensure the continuance of a positive support for other national security programs, and to deter the enemy from actions which might lead to war. The importance of this argument goes far beyond the question of fallout shelters. It is a question involving the national psychology and our ability and willingness to react in a positive way to the tensions of the coming decade. The lack of an effective civil defense has, so far, not been a handicap in the conduct of foreign affairs. This lack has, at least in part, been compensated for by the general feeling that our deterrent capability was overwhelming, and by the prospect that an active system of ballistic missile defense might eliminate the need for shelters. The basis of both compensating effects appears to be fading.

55. Proponents believe a determined effort to provide fallout protection, as a meaningful and positive response to the threat, would be interpreted as an indication of the national will to "see it through", whereas any less effort would receive the opposite interpretation. There has been some indication from NATO sources that our Allies would for that reason welcome a decision by the United States to build shelters. Proponents feel that this could be done on other than a "crash" basis as an act of hysteria, and point out that shelter-building in Europe has not resulted in panic.

56. Proponents argue that the effect on a potential enemy of a U. S. decision to place a substantially increased emphasis on fallout shelters is also uncertain. Assurance of the survival of a larger part of the U. S. civilian population might have essentially no effect on an enemy's calculations, but there is reason to believe that it would, since Soviet military planning provides for the contingency of a protracted war following the initial nuclear exchange. Shelter for the population would greatly enhance our ability to support a limited military effort after absorbing a nuclear attack, and the enemy might well believe that this would prevent him from achieving world domination.

57. Deterrence implies a hoped-for state-of-mind on the part of a potential aggressor that results from his estimate of our ability to retaliate effectively and our willingness to do so. Proponents believe that, in the absence of effective means to protect the population, our will to retaliate may be suspect. As we move into a period in which nuclear blackmail becomes, at least implicitly, an increasingly important factor in international diplomacy, one may question whether public support

for taking of necessary risks in foreign policy will continue to be as strong and constant unless measures for population protection are taken.

58. Opponents of a substantially increased emphasis place a different interpretation on the same factual situation. They feel that substantially increased emphasis on a shelter program above and beyond the present low-key approach would be viewed outside the Executive Branch of the Government as a "crash" program and as indicative of a dramatic reassessment of the likelihood of nuclear war. They also believe that giving new emphasis to a shelter program would be inconsistent with the efforts to achieve agreements with the Soviet Union on arms control and a nuclear test ban.

59. Opponents contend that the growing doubts among some of our NATO allies as to U. S. intentions might be intensified if the United States were to launch what appeared to be a "crash" program for the creation of a comprehensive shelter system, and that our problems would be aggravated in maintaining a friendly attitude among neutral nations in less-developed areas in the face of Soviet charges of war-mongering. They also believe that initiation of a "crash" shelter program by the United States could well create fears in the Soviet Union that the United States intended to attack when the program was complete, and might cause the USSR to initiate general war before the shelters could be built.

60. Opponents believe that the U. S. determination to respond to a Soviet nuclear attack or threat of attack, rather than to submit to Soviet blackmail, would not be materially affected by the degree of fallout protection available. They contend that since many millions of casualties would be expected even if shelters were available, the U. S. decision in any given circumstances would be the same regardless of whether a comprehensive shelter system existed.

61. Opponents of shelter-building are convinced that if substantially increased emphasis were to be given to shelters, the Executive Branch would be compelled to make major changes in other national security policies. Although recognizing that it is difficult to foretell the pressures which might result from an alarmed public opinion, this group feels that Congress could well be forced to curtail sharply foreign economic assistance and programs for increased contact with the USSR while at the same time there would be accentuated demand for major increase in other military programs, thus further emphasizing the posture of a nation preoccupied with preparations for war.

62. Those who believe that a low-key approach should be retained contend that, so long as even with shelters the probable number of casualties would be in the range estimated by current studies, preponderant efforts should continue to be concentrated on deterring war. They contend that whatever resources are available are better used for such purposes, including strengthening the retaliatory capability, protecting the retaliatory capability, strengthening allied military capabilities,

increasing limited war capabilities and employing non-military security measures such as economic and technical assistance, exchange and information programs.

63. Regardless of the resolution of this question, it appears that consideration should be given to protecting selected military personnel and installations as part of the over-all defense of retaliatory capability discussed in Question 1, and of the air defense capability discussed in Question 2.

64. In addition, there is a third group who feel that considerable increase in emphasis is possible within the essential concepts of the policy laid down in NSC 5807/2. They believe that it is too early to say, on the basis of experience, that the present policy will not result in significant shelter building. Those who hold this third view point out that the policy approved by the President in 1958 contemplated appropriations of the order of $100 million spread over the first three years. Actually, Congressional action has reduced appropriations in Fiscal Year 1959 to $2,075,000; in 1960 to $5,474,000; and it appears that less than $5 million will be available in 1961--a total for three years of only $12 million. In addition, Federal leadership has been lagging in many important areas--construction of shelters in new public buildings has so far been limited to a laboratory building of the Bureau of Standards in Boulder, Colorado, and this was not specifically approved by Congress. No start has yet been made on installation of fallout shelter in existing Federal buildings, and the military has not installed fallout shelters in either base construction or Military Dependents' Housing.

65. Those who support the third position calling for more vigorous prosecution of present policy note that editorial and public reaction has been generally favorable. A recent Gallup poll indicated that 38 percent of the population would be willing to build fallout shelters costing up to $500 at their own expense. This, and the many letters being received by OCDM and state and local civil defense offices indicate the possibility that the program may be catching on. A concerted effort to obtain Congressional backing for appropriations support of the order originally contemplated is needed before the conclusion can be reached that the policy currently in effect is inadequate. There is room for much more Federal example and much more public information effort before there is any slight danger of violating the "low key" injunction of current policy guidance.

Question 5: Are existing policies that provide for the continuity of essential wartime functions of the Federal Government in need of review?

66. Present concepts to assure the operational capability of the Federal Government in the event of attack involve three essential elements:

a. Hardened, dispersed control centers with communications: Of the 17 emergency control centers in the relocation arc, only three offer any special protection against blast or radioactive fallout. As a consequence, nearly all civilian agencies plan to concentrate selected staffs at the OCDM relocation site, which in net effect creates a lucrative target near Washington, D. C.. Even if all of the facilities were fully protected and operational as planned, it would still be possible for a large part of the existing Federal Government to be destroyed in an initial missile attack.

b. Relocation of senior officials: Planning for the relocation of civil and military elements of the Federal Government continues to assume a degree of warning time more appropriate to the manned-bomber era than to the missile age. Under the Joint Emergency Evacuation Plan, about 50 of the top civilian officials could be airlifted to emergency sites within 40 minutes after alert. But several hours of effective warning would be required for evacuation of thousands of subordinate officials with emergency assignments. There is also the assumption that civilian employees will leave their families upon warning of enemy attack and repair to their designated relocation sites.

c. The cadre concept: The inability of senior officials to survive an attack on the Seat of Government might place the Federal problems for the conduct of the war and post-attack survival in the hands of a small number of employees of limited high-level executive experience, lacking in electoral or appointive authority, and unknown to the public-at-large.

67. There is now a possibility that a situation could arise in which the responsibility for making decisions would be in doubt for an indefinite time. While this possibility exists, it should by no means be regarded as a certainty which renders useless present arrangements. There is always the possibility of strategic warning. But even without strategic warning, a large part of both the civilian and military officials would be capable of reacting intelligently in a deteriorating situation under pre-arranged succession plans, within limited fields of competence.

68. It is noted that there is no clear agreement as to the decisions that would be required of policy-making officials of the Federal Government during the attack and survival period.

69. Present planning for the continuity of the essential functions of the Government should be restudied in relation to (a) the reduced time available for the implementation of such plans, (b) the unlikelihood of the survival of many key Government officials, and (c) the disruption of communications and the widespread destruction immediately following the attack. In this connection, among the possibilities that would need to be studied, are: Strengthening the cadre to include more high-level officials; increasing the number of hardened dispersal sites beyond the number planned; use of airborne and seaborne command posts; greater prearrangement for emergency delegation of authority; greater decentralization of Government functions; greater dispersal of high-level officials and their staffs; an enlarged Presidential succession roster; better shelter protection in Washington for the President and Vice President; providing hardened facilities within present headquarters buildings and a concept of in-place operations; and greater emphasis on the alternate headquarters concept.

Question 6: Is there a clear need for vigorous research and development efforts to achieve a capability to destroy orbiting satellites and space vehicles?

70. Present policy provides for "a vigorous research and development" program in support of continental defense and specifies a number of areas "of particular importance", including "defense against satellites and space vehicles". (NSC 5802/1, paragraph 12)

71. Since satellite-based bombing systems would probably be less accurate, less reliable and more costly and vulnerable than land-based ballistic missiles, it is questionable whether the current threat of space-based military systems warrants U. S. emphasis on defensive measures. This seems clear even though a possible advantage to the USSR would accrue from the psychological effects and the resulting blackmail potential a space-based threat might have on the United States and its allies. Moreover, it is questionable whether U. S. activity in this field, especially of demonstration of a kill capability, would be consistent with U. S. policy and proposals for the peaceful uses of outer space.

72. On the other hand, we must anticipate a marked increase in the exploitation of space for military purposes. The United States, for example, is already proceeding with plans to orbit satellites for reconnaissance, navigation, early warning and communications. While USSR efforts to achieve space-based systems will probably depend more upon their view of Soviet requirements than on limitation of capability, the Soviets have a technical capability to implement similar plans in the very near future. Therefore, it appears desirable that the United States continue research and development efforts in order to achieve a thorough technical background and a defensive capability in the event the USSR achieves an offensive capability.

73. At the present time, research and development is underway to explore the feasibility of obtaining a co-orbital capability; i.e., placing a satellite in close proximity to, and in the same orbit with, an existing satellite. Such a capability would permit the passive inspection; e.g., close-up visual observation and survey with special detectors of suspicious satellites. Such a capability would also permit the destruction or disabling of errant U. S. satellites as, for example, one which is inadvertently jamming important radio frequency bands. The development of a co-orbital capability appears promising and desirable. With present knowledge of fragmentation and kill mechanism techniques, it appears that the development of a destruction capability for such a system poses no critical technical problems.

74. Therefore, while it appears desirable to pursue research and development efforts in this area, it is agreed that it would be unwise to undertake a test of such a system without specific Presidential approval.

EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL SECURITY COUNCIL
WASHINGTON

SECRET, DEFENSE INFORMATION, FORMERLY RESTRICTED DATA

July 14, 1960

MEMORANDUM FOR THE NATIONAL SECURITY COUNCIL

SUBJECT: U. S. Policy on Continental Defense

REFERENCE: Memo for NSC from Executive Secretary, same subject, dated July 14, 1960

The following Note 1 to paragraph 3-b on page 3 of the Discussion Paper transmitted by the reference memorandum, with the blanks filled in, is transmitted for use in connection with Council consideration of the Discussion Paper:

Note 1. In the case of the "best" 1 January 1960 Soviet missile (8 MT warhead, 3 n.m. CEP, and 75 percent reliability), 33 missiles would be required to give a 90 percent assurance of exceeding 100 psi at the target. In the case of the "best" mid-1963 Soviet missile (10 MT warhead, 1.5 n.m. CEP, and 80 percent reliability), 8 missiles would be required. In the case of a "possible" 1965-1970 missile with a 10 MT warhead, 1.0 n.m. CEP, and 75 to 85 percent reliability, only 4 missiles would be required. See NIE 11-8-59 and NIE 11-2-59.

James S. Lay, Jr.

JAMES S. LAY, JR.
Executive Secretary

cc: The Secretary of the Treasury
The Attorney General
The Director, Bureau of the Budget
The Chairman, Atomic Energy Commission
The Chairman, Joint Chiefs of Staff
The Director of Central Intelligence
The Chairman, Interdepartmental
Intelligence Conference