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Deterrence, Nuclear Strategy and the Post-Attack Environment (U)

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22 June 1981

Abstract (U)

(U) This paper examines the evolution of U.S. nuclear policy from the introduction of the atomic bomb in World War II through the doctrine of massive retaliation to the development of the current nuclear war fighting strategy. The primary focus is on major shifts in policy that occurred in the 1970's. Key policies, directives and objectives relating to nuclear force employment, C3I, and continuity of government are summarized. Nuclear war fighting in the post-attack environment is discussed and key issues in developing a credible post-attack capability are identified and discussed. Emphasis is placed primarily on those aspects of policy and issues in the implementation of that policy which have primary impact on communications, command, control and intelligence capabilities.

Introduction (U)

(U) When the first nuclear weapon was detonated over Japan, the U.S. military establishment was not prepared for the changes in doctrine and strategy this new weapon would precipitate. There was not much doubt that nuclear weapons were different. The basic characteristics of nuclear warfare that set these weapons apart from others - their overwhelming destructive capability and the impossibility of mounting an effective defense - was evident and would remain unchanged. However, the role of deterrence in military strategy did not immediately emerge and it would be decades before the concept of fighting a protracted nuclear war would surface from a slowly evolving U.S. strategic nuclear policy. Rapidly changing technology and a growing, changing Soviet nuclear threat would ultimately have wide ranging impacts on prevailing concepts of force structure, command, control, communications and intelligence (C3I), and the need for continuity of national command and control.

Evolution of US Strategic Nuclear Policy (U)

(U) The introduction of the atomic bomb into the U.S. military arsenal during World War II did not produce an immediate "U.S. strategic nuclear doctrine" or any drastic restructuring of the command, control, communications and intelligence that existed at the time. Although recognized as weapons of mass destruction, their use was imbedded in the then existing policy of warfare typified by the fire bombing of Tokyo.<sup>2</sup> As Henry Kissinger observed, "... we added the atomic bomb to our arsenal without integrating its implications into our thinking. Because we knew it merely as another tool in a concept of warfare which knew no goal save total victory, no mode of war except all-out war."<sup>3</sup>

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(U) The command structure and communications networks which supported the employment of nuclear weapons were at least adequate in these early stages of nuclear warfare. There was no requirement for instantaneous response to execution orders; the United States had a nuclear monopoly and no threat to the U.S. atomic warfare capability existed. There was no concept of nuclear warfare per se and hence no need for a "post-attack capability."

(U) There was, however, an immediately perceived requirement for the centralized command and control of nuclear weapons and authority for their use. Because of their tremendous destructive power and their emotional and political impact, political leaders realized that the use of nuclear weapons would require the highest level authorization. Ultimate civilian command and control of nuclear weapons, during peace and wartime, has become an accepted principle.

(U) It soon became evident that these new atomic weapons represented a strategic revolution, especially after the Soviet Union detonated its first nuclear weapon in 1949. The primacy of the Soviet-American relationship was not in doubt, but as Soviet efforts to achieve strategic parity continued, the U.S. strategy of winning war with nuclear weapons shifted to that of preventing war.<sup>4</sup>

(U) The doctrine of "massive retaliation," as presented by Secretary of State John Foster Dulles, was the first explicit U.S. doctrine on the use of nuclear weapons. It recognized that a redundant, survivable second strike capability was the essence of deterrence. Under "massive retaliation" the United States threatened the Soviet Union with a massive nuclear attack against its civilian population if the United States were attacked.<sup>5</sup> Given the nuclear superiority of the United States at that time, the threat of nuclear retaliation was credible enough to deter not only a Soviet attack on the U.S. mainland, but in Europe as well.

(U) The command, control, communications and intelligence implications were relatively straightforward. Implicit was the concept of "one big bang," a massive retaliatory option which could be executed with a single order. Should deterrence fail, authorization for the release of nuclear weapons would be passed to the military command structure which in turn would pass the order on to the forces. The planning and targeting could be done well in advance, with peacetime intelligence capabilities. Detailed execution instructions could be prepositioned with the forces and two-way communications between the decision-maker and the forces were not required.

(U) The credibility of the deterrent was based upon survivability of forces and C3 (but not intelligence). The command, control and communications structure as well as the nuclear forces, would have to survive an initial hostile nuclear attack and maintain the capability to respond massively. Reductions in vulnerability and some reconfigurations of the strategic structure would be required. The concept of a triad of bombers, ICBMs and SLBMs was developed as a redundant, survivable, second strike force. Services went about the task of developing survivable communication, command and control facilities.<sup>2,4</sup> The Strategic

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Air Command launched its airborne command post and other hardened command posts were developed. Communications systems which could operate in a nuclear-perturbed environment were high interest items. An attempt was made to create some sort of minimum essential emergency communications network to handle the simple, one-way task of communicating the nuclear execution order.

~~(S)~~ There was equal concern and action starting with the Eisenhower Administration for the problems of Continuity of Government, National Command and Control and Telecommunications. In reaction to the potential Soviet bomber threat of that time, the National Arc of relocation sites for the departments of the Federal Government was constructed and plans for continuity of the Presidency were refined. Actions were undertaken by the common carriers to enhance the survivability and robustness of their networks which provided a large portion of the domestic Defense communications. In the interest of national security, transcontinental cables were buried, hardened switches were constructed, and microwave systems were routed around potential target areas. The added costs of construction were indirectly borne by the AT&T rate-payers.

(U) Dissatisfaction eventually arose with a policy<sup>6</sup> which required a massive, instantaneous retaliatory strike against the enemy. By the beginning of the 1960's, the U.S. ability to stop a Soviet invasion of Europe by threatening massive retaliation had deteriorated. The United States could still threaten the Soviets with nuclear weapons but the Soviets could now respond in kind. Gradually it became apparent that massive retaliation meant mutually assured destruction. Soviet nuclear capability had made the threat of responding to conventional attacks with nuclear weapons less credible. Furthermore, the Soviets had obtained their own assured destruction capability. During the Kennedy and Johnson Administrations this situation led to the development of the doctrine of "flexible response" and the emphasis to develop armed forces with wider conventional capabilities as an alternative to massive nuclear attack. The newly evolving policy of "flexible response" did<sup>9</sup> not, however, challenge the basic assumptions of the strategy of deterrence. However, through flexible response, deterrence now became to be tied to a war fighting capability. During the period that Robert McNamara was Secretary of Defense, the concept of the use of limited strategic forces arose and began to be debated, although intermittently. The scale of operation envisaged in McNamara's talk of controlled response and damage limitation was, however, much larger than the selective strikes later proposed and developed.

#### Doctrinal Shifts in the 1970's (U)

(U) The 1970's saw several significant changes in nuclear policy. Under the Nixon Administration various high level officials, including Secretary of Defense James Schlesinger and the President himself, publicly expressed<sup>7</sup> the need for other nuclear options in addition to a massive nuclear attack. The logic was similar to McNamara's limited and controlled use of strategic nuclear weapons to deter threats less sweeping than all-out national destruction.

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~~(S)~~ NSSM 169. During 1972 to 1973, a study group established in the Department of Defense examined the U.S. nuclear deterrent and ways to improve its effectiveness. This study was issued for interagency review by the National Security Council as National Security Staff Memorandum (NSSM) 169. The major conclusion of that study was that the threat of massive retaliation was a credible deterrent only at the upper levels of potential nuclear conflict. In order to deter a wider range of hostile actions, a series of measured responses were needed to deal with lower levels of provocation (nuclear or conventional) that might be encountered. It was felt that limited nuclear options offered improved prospects for limiting damage by providing control of escalation. Credible escalation control would require limitations on the scope, level and duration of an attack which the enemy could clearly discern. Therefore, targeting and planning would have to shift from satisfying purely military requirements to fulfilling politico-military objectives. Special emphasis would have to be placed on mutually supporting military (conventional and nuclear) and political measures.

~~(S)~~ NSDM 242. NSSM 169 formed the basis for National Security Decision Memorandum (NSDM) 242, "Policy for Planning the Employment of Nuclear Weapons," promulgated in January 1974. This document formalized the basic reorientation of U.S. nuclear policy away from a single option of massive retaliation to a range of options which included the "one big bang" as well as a series of "lesser bangs." While deterrence remained the fundamental objective of NSDM 242, the means of ensuring deterrence received new emphasis. Escalation control became a key factor. Different sized options had to be created from which the decision-maker could choose an appropriate response to various levels of aggression. This wider range of nuclear options would be used in conjunction with supporting political and military measures, including the employment of conventional forces, to control escalation.

~~(S)~~ Once the doctrine of controlled nuclear strikes had been conceived, it was a short step to considering the possibility of a protracted nuclear war consisting of more than one exchange. NSDM 242 also recognized the need to maintain strategic forces in reserve for use after execution of the Single Integrated Operational Plan (SIOP). This concept would later evolve into a designated "Secure Reserve Force" of nuclear weapons withheld from the main SIOP attack for subsequent execution. The purpose of this force was to assure that the United States maintained some residual capability to limit subsequent coercion from enemy or perhaps third country forces and to apply coercive power to achieve its own objectives.

~~(S)~~ NSDM 242 directed the restructuring of the SIOP into a series of options ranging from massive Major Attack Options (MAOs) through smaller (though still large) Selected Attack Options (SAOs). In addition to the SIOP options, theater oriented Regional Nuclear Options (RNOs) and small Limited Nuclear Options (LNOs) were developed. NSDM 242 also directed the Secretary of Defense to incorporate and amplify the new policy in a central document entitled "Policy Guidance for the Employment of Nuclear Weapons (NUWEP)," which was published in April 1974. The initial implementation of the NSDM 242 policy and the NUWEP was accomplished on 1 January 1976, when SIOP V became effective.

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(S) NSDM 242 and the NUWEP did not specifically address C3I problems, but the new policy surfaced a number of them. The requirement for escalation control meant that the National Command Authorities (NCA) would need better information support and C3 procedures to permit decision-making on limited use of strategic and nuclear forces. The shift from massive retaliation to a strategy of flexible response imposes more stringent demands on the command and control structure: highly reliable tactical warning and attack assessment systems are needed to provide the critical information for confident selection of an option; theater level situation information must be more timely and detailed and better NCA direction and control of theater nuclear operations was required. The overall requirement for stability in crises management and escalation control imposed survivability requirements on C3I. Consequently theater and national C3I systems would have to be more survivable under both conventional and nuclear attacks.

(S) PD/NSC-18. In August 1977, President Carter issued Presidential Directive/NSC-18 (PD/NSC-18), "U.S. National Strategy." PD/NSC-18 elaborated on NSDM 242 within the broader context of U.S. nuclear strategy. The directive emphasized the consistency of the U.S. strategy with the NATO strategy MC-14/3 of flexible response, stressing reliance on a combination of conventional, theater nuclear and strategic forces. Once again it reiterated the fundamental objective of deterrence. If deterrence failed, U.S. targeting plans should provide options for limited retaliatory responses designed to control escalation and flexibly respond to aggression. PD/NSC-18 listed some specific requirements for the U.S. force posture, among which was the capability to inflict an unacceptable level of damage on the Soviet Union following a Soviet first strike. The need was restated for a secure reserve force for possible use after a major nuclear exchange. There was no direct mention of the C3I needed to support these objectives other than timely tactical warning and attack assessment. The document briefly addressed the requirement for the command and control capability and forces to execute limited strategic employment options.

(S) NTPR. PD/NSC-18 contained specific direction to the Secretary of Defense to review U.S. nuclear targeting policy. This tasking resulted in the Nuclear Targeting Policy Review (NTPR) established in November 1978. This review resulted in a number of major findings which addressed some of the implications and assumptions of policy not articulated previously. In particular, the study highlighted the Soviet Union's preparation to fight and survive a nuclear war should it occur and to come out on top. It proposed that deterrence would be enhanced by the United States developing forces and capabilities which would minimize Soviet hopes of military success. This analysis of Soviet strategy forced U.S. recognition of the possibility of a protracted nuclear war.

(S) While endorsing an escalation control strategy, the study noted serious deficiencies in plans and capabilities.

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~~(S)~~ The NTPR examined the requirement for a hard target kill capability. In evaluating the objectives for targeting of the Soviet nuclear threat (i.e., to limit subsequent damage to the United States and prevent an unfavorable post-war balance) the study confronted the fact that the Soviets had engaged in extensive hardening of not only their forces but their C3 facilities also. It was noted that attacks

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~~(S)~~ A key observation of the study involved endurance--the ability of the strategic nuclear forces and the supporting C3I not only to survive initial attacks but to remain an effective military force for a prolonged period thereafter. It was noted that the secure reserve force and its supporting C3I may need to survive for weeks or months after an initial nuclear attack.

~~(S)~~ The study also pointed out the need for our strategic targeting plans to deal more effectively with the Warsaw Pact threat to NATO. (The primary orientation of limited nuclear options

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(S) Several major recommendations of the NTPR would have significant impact on forces and C3I:

1. ~~(S)~~ The requirement for endurance should be considered a high priority requirement in the future planning of U.S. forces and C3I assets.

2. ~~(S)~~ New priorities should be established for targets taking into account that the targets may be dispersed and mobile.

3. ~~(S)~~ The Secure Reserve Force, to be used effectively,

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4. ~~(S)~~ The development of nuclear weapons employment policy should be recognized as an ongoing process requiring interactions between policy-makers and planners.

(U) PD/NSC-53. At the same time that nuclear weapons employment policy was being reviewed, studied and updated, National guidance in several collateral areas of C3I was being developed. In considering the problems and implications of protracted nuclear warfare and the post-attack environment, it was realized that survivability, endurance and reconstitution of National and military command and control would depend to a large degree on the national telecommunications structure (i.e., government owned and common carrier capabilities). Well over 90% of Defense communications in the United States are leased from the common carriers (including several special purpose communications systems supporting nuclear command and control). The most survivable military communications assets, such as the Minimum Essential Emergency Communications Network (MEECN), are government owned. However, they have been primarily developed in support of the policy of massive retaliation and would have less utility during a protracted nuclear war scenario.

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(U) The importance of the national telecommunications structure to post-attack operations and reconstitution is amplified by its enormous extent and geographic dispersion. It is this proliferation and redundancy in assets which gives it its inherent and robust survivability. Although additional dedicated military communications systems would be needed to support post-attack operations, there is little doubt that improving the endurance and survivability of common carrier networks would be of major importance to national command and control. However, the domestic communications structure had changed considerably from the late 1950's and early 1960's when AT&T undertook efforts to improve survivability in the interest of national security. There are more competitors to AT&T today. The more competitive environment does not permit one company to make such improvements and expect to be compensated in the rate base. The problem appeared to be: how do you influence national planning so that all these separate public and private communications systems can be interconnected to support reconstitution of national telecommunications and national command and control after an attack.

(U) Specific policy direction was spelled out in November 1979, when PD/NSC-53, "National Security Telecommunications Policy" was issued. This directive took a very global look at the role and importance of telecommunications to national security. It identified the necessity of survivable communications for deterrence and stated that the goal of telecommunications is to satisfy the needs of the nation during and after any national emergency, including protracted nuclear war. It identified the national security roles of national telecommunications (both government and private sector):

1. (U) Connectivity between the NCA and strategic and other appropriate forces during and after an enemy nuclear attack.
2. (U) Responsive operational control of U.S. forces even during a protracted nuclear war.
3. (U) Support of military mobilization.
4. (U) Support of intelligence collection and diplomatic affairs.
5. (U) Continuity of government as well as national recovery during and after a nuclear war or natural disaster.

(U) To guide planning for the above objectives, PD/NSC-53 established several principles: it emphasized the need for interconnecting separate government telecommunications networks; it emphasized the use of common carrier and industry private lines of communication during national emergencies; it required that national security and continuity of government receive priority restoration in national emergencies; and it recognized the need for national management of the restoration and reconstitution of national telecommunications following an emergency.

(S) PD/NSC-58. An essential element to post-attack and national command and control capabilities is continuity of national command. Like much of the command and control system of that time, the continuity of government system established during the Eisenhower era was a response to the Soviet bomber threat. In 1979, a working group established by the National Security Council

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examined alternative ways of basing the NCA during national emergencies and of assuring continuity of the Presidency. The study and recommendations of that group formed the basis of PD/NSC-58, "Continuity of Government/C3I," issued in June 1980.

(S) This directive was the latest attempt to deal with the overall problem of continuity of national command and the C3I supporting the national leadership. It emphasized the need for the Presidency to survive a nuclear attack, even one which involves repeated attacks over a long period of time. Unlike previous solutions to the problem however, the PD was not limited to addressing NCA and military survivability and command and control problems. It was an attempt to address the question of National Command and Control. It examined the need to assure that the President or successor could: direct our strategic and theater nuclear forces and all other aspects of a general war; conduct negotiations with adversaries and with our allies during conflict; and control domestic affairs during the conflict and the national recovery after the war has ended.

(C) To these ends, the directive addressed the development of a new National Command and control capability, assigned responsibilities to specific government agencies and directed specific actions to achieve these capabilities.

(C) PD/NSC-59. The following month, July 1980, PD/NSC-59, "Nuclear Weapons Employment Policy," was released. It outlined in broad terms the evolving countervailing strategy drawing on PD/NSC-18 and the Nuclear Targeting Policy Review. Again deterrence remained the fundamental objective of U.S. strategic policy. The document also recognized the need to improve U.S. forces, their supporting C3I and their employment plans and planning apparatus in order to meet the strategy's requirements. As guidance for making these improvements, the directive established a set of principles and goals:

1. (S) Preplanned options would remain a central part of the SIOP. They should include flexible sub-options for subsequent escalation in a major attack--with recognition that their execution depends on the survival of C3. Preplanned options for lesser contingencies should also be developed.

2. (S) Flexibility in targeting would be required where preplanned options were not suitable.

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3. (S) There must be a flexible and varied secure reserve force with high survivability and endurance.

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4. ~~(S)~~ There is a need for survivable, enduring and reconstitutable C3I to support all the above.

5. ~~(S)~~ There is a need to link employment policy to acquisition policy for nuclear weapon systems and C3I to take into account the required flexibility, survivability, endurance, and target destruction capability.

(U) NUWEP - 1980. The PD/NSC-59 guidance was incorporated into the "Policy Guidance for the Employment of Nuclear Weapons," the successor to the 1974 NUWEP, published by the Office of the Secretary of Defense in October 1980. In addition, the new NUWEP provided planning guidelines for strengthening the U.S. defense posture through development of greater flexibility and endurance in forces and supporting C3I.

(U) The 1980 NUWEP is the current and best statement of U.S. nuclear policy. This policy specifies four objectives for weapons employment:

1. (U) Deterrence. The continuing reaffirmation of deterrence as the most fundamental objective of U.S. nuclear policy emphasizes as well the need for U.S. nuclear forces to support the NATO MC-14/3 flexible response strategy. The NUWEP recognizes that deterrence depends on affecting Soviet perceptions of our force capabilities and the way we intend to use those forces. The way to achieve deterrence is "to make a Soviet victory, as seen through Soviet eyes and measured by Soviet standards, so improbable over the broadest plausible range of scenarios that the Soviets will be deterred." This has been called objective denial.

2. (U) Crisis Stability. In a crisis the United States "must ensure that the USSR has no incentive to initiate a nuclear attack and that the United States is not under pressure to do so." This objective requires that we maintain survivable forces and C3.

3. ~~(S)~~ War Objectives. In the event of war, the United States must "defeat Soviet attempts to achieve their politico-military objectives or impose higher cost on them than the value they might expect to gain from their actions." The intent is to promote the earliest possible war termination on acceptable terms as favorable as practical to the United States and its allies, taking into account the risks of escalation. This objective requires plans for attacking a full range of targets which comprise the Soviet military power structure and the political and military leadership and control structure. The capability

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4. ~~(S)~~ Protection and Coercion. "The United States must maintain nuclear forces in reserve for protection and coercion during and after a prolonged nuclear conflict. We must deny the Soviet Union or any other country the opportunity to coerce the United States, our allies or third countries, or to dominate the post-war situation." This objective requires that we maintain a reserve nuclear force and supporting C3I for protection from coercion during and after a prolonged nuclear conflict.

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~~(S)~~ Thus, the NUWEP specifies a war-fighting strategy for the employment of nuclear weapons based on flexibility, endurance, escalation control, and the maintenance of reserve forces, as well as specific targeting objectives. Continuing assessments of nuclear employment plans are to be accomplished by evaluation in regular, periodic exercises. Furthermore, the NUWEP recognizes that the achievement of the employment flexibility will require long term improvements in the endurance and capabilities of the forces and C3I. Therefore it provides for the revision and evolution of employment plans as improvements are made. Specific areas requiring improvement are listed, including more effective targeting of enemy forces, mobile and fixed, [redacted]

#### Nuclear War Fighting and the Post Attack Environment (U)

(U) As can be seen, the shift in U.S. strategic policy has been to rely more heavily on the traditional deterrence associated with maintaining a war fighting force. The precise nuclear war fighting capabilities could range from the use of battlefield nuclear weapons, through limited attack with a combination of strategic and theater forces, to large scale attacks with central strategic forces. Present doctrine permits use of theater and strategic weapons in response to any Soviet attack (conventional or nuclear) up to a high level of violence.

~~(C)~~ Traditionally, JCS Publication 1 definitions of trans-attack and post-attack periods (i.e., the trans-attack period is the "period from the initiation of the attack to its termination," the post-attack period "extends from the termination of the physical attack until political authorities agree to terminate hostilities") are applicable to the concept of massive retaliation, in which both sides expended their nuclear arsenals in two large volleys and then proceeded to pick up the pieces. The definitions are no longer strictly valid under the concept of protracted nuclear war which could consist of several nuclear exchanges. The post-attack period will not necessarily be free of hostilities. The protracted war environment will depend upon the Soviet attack objectives, the structure of the attack and the U.S. response. Damage to the United States and the Soviet Union are likely to be extensive. Attempts at coercion may accompany attempts at negotiation. Generally, the post-attack environment can be seen as one of multiple detonations over a period of possibly months and repeated and expanding interruptions to and destruction of C3I capabilities in the face of attempts to reconstitute them.

~~(C)~~ The aftermath of a nuclear war has been popularly portrayed as one of unmitigated destruction. The number of survivors can often be counted on one hand, there are no buildings left standing and all economic and government activity has come to a halt. Analytical studies have revealed a more optimistic picture of the post-attack environment. The one reason for this optimism is the "fat" and richness in resources of the United States and other advanced industrial economies. It is clear that many important assets and population would survive a major nuclear attack on the United States.

~~(C)~~ Radioactive fallout, resulting primarily from surface burst weapons used in attacks on hard targets, will influence the conduct of a protracted war

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significantly, particularly during the first two weeks. A high percentage of the U.S. population, in order to survive or avoid serious illness, will have to seek out and remain in radiation shelters. The extent which the requirement to use protective shelters will initially immobilize large areas of both nations and restrict military operations is a significant limiting factor in the post-attack environment.

~~(S)~~ The military mission will remain unchanged: maintain a strategic deterrent and resolve the conflict in favor of the United States. The problems will be greatly compounded, however, by the loss of C3 and intelligence information, the presence of fallout, and possible civil disorder and social disruption. These factors could severely restrict military operations, limit mobility and delay reconstitution.

~~(S)~~ The post-attack environment also encompasses attempt at national reconstitution and recovery. Efforts to maintain or restore National command and control over domestic and international, as well as military activities, cannot wait until the final end of hostilities or the signing of a peace agreement.

#### Implications and Issues for C3I (U)

~~(S)~~ U.S. C3I capabilities have not kept pace with policy and strategy changes. This situation is understandable considering the rapid pace of development of U.S. nuclear policy over the past eight to ten years and the initial lack of recognition of the implied C3I requirements. NSSM 169, for example, assumed that procedures for execution would simply parallel those for the then existing SIOP. While the study expressed some concern about survivability of C3 assets, the overall conclusion was that further study was needed. The operational problems and implications of flexible response and limited options were not well understood. As a result it was years before the degree of strategy-capability mismatch was recognized.

(U) It can be argued that the present inattention to the operational aspects of nuclear warfare reduces significantly the effectiveness of our deterrent force. Many of these operational aspects are C3I related. The following discusses a few of the implications for C3I of current U.S. nuclear strategy and related policies.

1. (U) Survivability and Endurance. Perhaps the most widely recognized implication is for survivability and endurance. The need for survivability was recognized from the beginning of the development of the doctrine of massive retaliation. The need for endurance has only recently been developed as a result of the U.S. mirror imaging of the Soviet strategy of protracted nuclear warfare. The cornerstone objective of setting aside reserve forces for protracted wars now requires robustness and reconstitutability in both forces and C3I.

~~(S)~~ Survivability and endurance of forces and supporting C3I strengthen the U.S. defense posture by ensuring that the United States is not placed in a "use or lose" situation that might result in an unwarranted escalation of the conflict. It also allows the United States to adapt the employment of its forces across the spectrum of nuclear war and permits us to keep substantial forces in reserve

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for protection and coercion. Ideally we should be able to withhold and control at least as much force capability as do the Soviets, to include maintaining a capacity for the ultimate destruction

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implies a capability to conduct a relatively prolonged exchange.

(S) In improving survivability and endurance of forces and C3I, it is necessary to attain balanced survivability and endurance--balanced among the forces, weapons and C3I, to avoid any weak and exploitable links. The issue of attaining survivability and endurance is complicated by the increasing accuracy of Soviet warheads, making physical hardening, for example, less important in some cases than achievement of redundancy, mobility, proliferation, or concealment.

(S) Survival and operation over a period of weeks or months of systems which support key functions is essential. However an enduring survivability is not the only way to attain endurance. In examining requirements it is important to isolate the need for continuous survivable and enduring C3I from reconstitutable, and less timely, C3I. A key question is whether the strategy is any less credible if there are periods of little or no C3I support while reconstitution progresses. The answer lies in an operational analysis of the functional requirements. The solution will be a mix of survivable and reconstitutable systems, and we must be careful not to place too much emphasis on initial survivability to the exclusion of endurance over the long-term.

2. (S) Concept of Operations. Post-attack command and control organization and responsibilities have not been structured with a continuing war effort in mind. The command deficiencies are acute because of vulnerability of staffs and data bases and uncertain post-attack organization, missions and functions. The organizational structure of command and control for nuclear forces (and for continuity of government in general) lacks endurance and flexibility to operate effectively over long periods in a nuclear environment. Needed are the dispersal of key planning functions (e.g. the Joint Strategic Targeting and Planning Staff (JSTPS)), key support staff (e.g. to support the President and Presidential successors) and consideration of new organizational concepts for command and control. War fighting concepts will have to be developed which respond to the conditions expected to prevail during a protracted conflict.

3. (S) Tactical Warning/Attack Assessment. In nuclear war fighting and the post-attack environment, the roles of tactical warning and attack assessment (of missile and bomber attacks) are greatly expanded. Traditionally, tactical warning has been considered essential for force and NCA survivability. Attack assessment information (and the derivative damage assessment) was necessary to support selection of a military response.

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In a prolonged nuclear conflict, with the possibility of several nuclear exchanges, both capabilities must have a high degree of endurance. An enduring tactical warning capability, especially against follow-on bomber

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strikes, may be essential for the survivability of reserved and reconstituted forces, the NCA and C3I. An enduring attack assessment capability would also be essential. However, it is unlikely that the fine grained information that is the goal of present attack assessment programs will be essential in the post-attack environment. It is also unlikely that such information would be necessary or would be acted upon prior to weapons impact. Nuclear detection systems, which could provide very accurate post-impact attack assessment, as well as assessments of our strikes against the enemy, will play an important role.

4. ~~(S)~~ Connectivity. Connectivity is essential for war initiation, war prosecution, and war termination. The primary focus on improving connectivity has been on the NCA-to-the-forces link for war initiation, specifically on assuring massive retaliation prior to impact of enemy weapons. The current strategy demands more than the minimum one-way communications required to execute a massive, one time response. For prosecution of the war, two-way communications are essential to effectively reconstitute our strategic forces following an attack and to obtain force status information before and after the execution of follow-on strikes.

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Two-way communications are also necessary to obtain damage and strike assessment data to support negotiations as well as targeting, reconstitution and recovery.

~~(S)~~ Connectivity to support war termination is important. Under an attempt at escalation control, the consequences of failure to stop can be severe. Starting a nuclear war may be much easier than stopping it. Not only must there be connectivity among the decision-maker, the military command structure and the nuclear forces (which may be scattered over half the globe on their way to targets); but the NCA needs to know that the forces have received his direction to stop or, at least, which segments did not. This requires two-way communications.

~~(S)~~ Another important element of connectivity concerns post-attack communications with key allies for consultation and with potential adversaries for negotiations and war termination. This is not strictly a military requirement and the communication requirements are broad and ill defined; they are essential to a successful strategy. Whereas dedicated systems, such as the MOLINK, may be adequate for pre-attack crises management and escalation control, dedicated systems are unlikely to fulfill the broad post-attack needs.

5. ~~(S)~~

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To be an effective deterrent, our forces and C3I must have credible capabilities that are perceptible to the Soviets.

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Conclusions (U)

~~(S)~~ The above list of issues and implications is not exhaustive, but is indicative of the magnitude of the impact of current U.S. nuclear policy. The demands of the current policy raise serious questions of technological feasibility, reasonable risk and cost. The subject of protracted nuclear war is so broad and interwoven that it would be useful to undertake an effort which makes an attempt at structuring an integrated approach to the changes needed. Such an effort should consider all aspects of the problem: personnel, weapon systems, supporting systems, the logistics base and C3I. It should also define the extent, feasibility, priority, cost and timing that are envisioned for these changes. If a steady and integrated approach is followed over the next decade, the resultant posture will undoubtedly be one which can create sufficient uncertainty in attack outcome that deterrence will be enhanced.

~~(S)~~ It is clear that the growing complexity of U.S. nuclear doctrine has greatly expanded the requirements of strategic command, control and communications and intelligence and complicated the associated problems. A long range acquisition plan can link C3I needs to policy. However, it is critically important that the development of new C3I systems be a product of a total strategic force evaluation. The fundamental issue is: what attributes should the C3I system possess so that, when integrated with nuclear weapons into a total force, it will optimize prospects of deterring nuclear attack against the United States and, should such deterrence fail, how could C3I when combined with the nuclear forces be employed to defeat enemy attempts to achieve their politico-military objectives. The required modernization of the strategic C3I system to support the strategy requires the same funding priority as that of new strategic weapon systems. Without it, our entire deterrent policy would lack credibility.

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