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Reexamining Nuclear Policy in a Changing World

Leon Sloss

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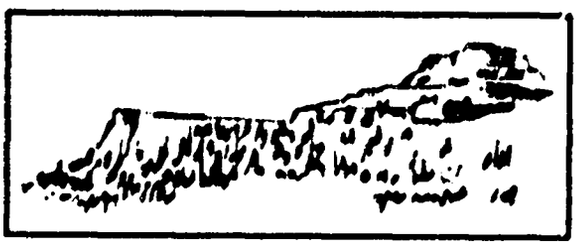

CNSS
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Los Alamos National Laboratory

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Reexamining Nuclear Policy in a Changing World

Leon Sloss

I. INTRODUCTION

My purpose in writing this report is to develop a rationale for a new nuclear employment policy and force structure adapted to the conditions that might prevail at the beginning of the twenty-first century. Of course, no one can be sure what those conditions will be, but we can be quite confident that they will differ from the past and the present.

Because nuclear policy should be a reflection of broader national strategy, I shall examine some broader security issues first. The extremely rapid changes that are occurring in the international environment will require a thorough revision in U.S. national security strategy and force posture. This will be a complex task because there is more uncertainty about the future than we have faced for some time. It is well beyond the scope of this paper to outline a broad national security policy, but I shall touch on some of the broader issues and trends that seem likely to affect nuclear employment policy and weapons requirements.

The underlying thesis of this report is that nuclear weapons will be required for the foreseeable future, and thus we must continue to think about how they might be employed. The roles of nuclear weapons will change, however, and it will be possible to accomplish those roles with far fewer nuclear weapons than we have today. Both our nuclear posture and nuclear employment policy must change radically to accommodate to changing conditions. While the predominant role of nuclear weapons will continue to be focused on the Soviet Union for the foreseeable future, we will be less concerned with deterrence of overt aggression and more concerned with the role that nuclear weapons can play in shaping a new security relationship with the Soviet Union and other nations.

I will briefly describe changing international conditions as they affect nuclear employment policy. Then a proposed restatement of the goals and roles of nuclear weapons that might be appropriate to these changing conditions will be offered. The report also postulates a future strategic force posture and illustrates how such forces might be employed in support of revised roles and goals. I will conclude with some suggestions for further analysis.

II. CHANGING INTERNATIONAL CONDITIONS

Political Changes

The dramatic changes in Eastern Europe over the past year have, in effect, demolished the Warsaw Pact, and the close ties between the Soviet Union and its former satellites have been severed. The Warsaw Pact no longer exists as a viable military alliance. Within the Soviet Union itself, *glasnost* and *perestroika* have altered Soviet priorities. The Soviet leadership is focused on achieving economic

reform and containing nationalist separatism, leaving little room for foreign adventures and giving new emphasis to achieving economies in defense.

German unification has profoundly altered the political-military map of Europe. A new economic and political power in Central Europe has been created that will overshadow its neighbors, and this prospect is creating new tensions in the West. Furthermore, withdrawal of Soviet power from Eastern Europe is reopening old rivalries and creating new instabilities in the nations formerly allied with the Soviet Union.

The central rationale for the North Atlantic Treaty Organization (NATO) has been deterrence of Soviet aggression in Europe. Today, a declining sense of threat is casting doubt on that rationale and weakening the cohesion of NATO, causing many to question its relevance. In particular, there are growing pressures on both sides of the Atlantic to sharply reduce U.S. forces and nuclear weapons in Europe. The declining sense of threat is also causing Western nations to shift priorities from defense to other issues (e.g., economic growth and the environment).

As security concerns decline, U.S. military power will inevitably become less relevant in our relations with other nations. Economic issues are assuming increasing importance, but the United States is no longer the dominant economic power that it was in past decades. As a result of these trends the United States is destined to play a less dominant role in world affairs than we have been accustomed to. Still, the United States will be an important and influential power, and our nuclear weapons will continue to play a role in protecting U.S. security interests and promoting international stability.

Military Changes

The Soviet threat to nations on its periphery has declined markedly, but the Soviet Union remains a powerful military power. Factors contributing to a reduced threat include:

- Reductions in Soviet forces in Europe (and, to a much lesser extent, in the Far East) and the prospect of further reductions as a result of arms-control negotiations and unilateral actions.
- The demise of the Warsaw Pact and the changes in the military geography of Central Europe. The Soviets will no longer be able to mount a short-warning attack from the new positions to which they are withdrawing.
- Soviet preoccupation with internal problems, making foreign adventures much less likely in the near term.
- Changes in Soviet views about nuclear weapons.

These changes began in the late 1970s and accelerated in the 1980s. Soviet leaders, who once argued that nuclear weapons would be decisive in any future war, now appear to see less military utility in nuclear weapons. The disaster at Chernobyl has had a major impact on Soviet thinking, casting further doubt on the utility of nuclear weapons and raising new concerns about the consequences of a major war. The Soviet leadership appears willing to make substantial reductions in both strategic and theater nuclear forces, but there is little evidence that they are prepared to eliminate their nuclear weapons, despite some rhetoric to the contrary. Furthermore, Soviet military planners continue to develop and refine plans for fighting with nuclear weapons, and major programs for modernizing their nuclear forces are proceeding.

Changes in the Soviet posture already have increased warning time. Additional prospective changes resulting from the Conventional Forces in Europe (CFE) negotiations will further increase warning time and confidence in warning. This will make it possible for the West to reduce active forces and to rely more heavily on force potential and mobilization capabilities. However, the West has yet to adapt its planning or its posture to these new realities. Because defense planning today is dominated by short-term considerations, notably budget pressures, it will be very difficult to adjust forces and plans to the new conditions in a rational fashion.

The prospect of a more equal conventional force balance in Central Europe should make it possible for NATO to rely less on nuclear weapons. Still, there will remain a requirement to offset Soviet nuclear power so that there is no temptation to use it either politically (e.g., for coercion) or militarily. For the foreseeable future the United States will be the only country in the world with an ability to offset Soviet military power.

Proliferation of nuclear weapons and other advanced military systems is a growing concern for two reasons. First, sophisticated and highly lethal weapons are proliferating to nations that never before had them. This raises the prospect that future conflicts in the third world could involve modern weapons, converting what in the past might have been a minor operation for the United States into one with major risks. Second, the decline of bipolarity may cause nations that once sought security in an alliance framework to seek their security independently. If nations such as Germany or Japan lost confidence in U.S. security guarantees and began to develop their own nuclear capabilities, this would be profoundly destabilizing.

III. ELEMENTS OF A STRATEGY FOR THE 1990s AND BEYOND

Objectives

In the circumstances described above our security strategy should have three main objectives. First, it should contribute to balancing Soviet military power and dissuading them from reconstituting that power in the changed threat conditions already described. Second, it should contribute to stability in Europe and to reassurance of our allies there. Finally, it should protect vital U.S. interests elsewhere in the world. There should be new opportunities to reduce the risks of military confrontation and to ease the burden of arms. There will also be new security problems to confront. The United States needs to shape its strategy and force posture to take advantage of opportunities to control and reduce arms, but also to hedge against new threats.

Changes in NATO

Being prepared to defend against a large, potentially nuclear war in Europe has been a major driver of our strategy and force posture. Such a threat has become more remote, and if a threat does reemerge we will have considerable warning. Thus, we can begin to reshape our strategy and restructure our forces with this in mind.

We must now assume that substantial forces and nuclear weapons will be withdrawn from Europe. It would not be realistic to resist these trends if we wanted to, but there should be two conditions. First, withdrawal should be mutual. We should take advantage of apparent Soviet desires to reduce their forces and to negotiate a better balance in Europe, ensure greater warning time, and establish a verification regime that would provide ample and clear warning of any violations of the new regime. Second, we should structure our own forces (and encourage our allies to structure theirs) so that we can respond effectively to warning under the new conditions. According to some estimates, the amount of warning time that we can expect in Europe already has increased from ten to fourteen days to at least thirty days.[1] In the future, warning times may be even greater. To adjust the U.S. and allied force postures to this new condition implies creating reserve forces that can be mobilized within the warning time likely to be available and establishing a mobilization base that can be expanded as quickly as estimates of warning time demand. These safeguard measures will not only permit us to respond to warning, but will also help to deter reconstitution of forces by the Soviets.

We should plan to keep forces and nuclear weapons in Europe at reduced levels as long as they are welcome. Our presence not only contributes to deterrence but also provides reassurance to allies and gives us a voice in the emerging, changed Europe. However, we must

be prepared to make changes in our force deployments, including nuclear weapons deployments, when it is clear that our presence is more of a political liability than a military asset. Clearly, President Bush considered the new strategic and political conditions in Europe before the recent (July 1990) NATO summit in London, where he proposed abandoning early nuclear first use and called for the eventual withdrawal of nuclear artillery.

We will need to maintain plans and capabilities to return forces, including nuclear forces, to Europe if the threat changes, but it is neither realistic nor necessary to plan on returning a large number of heavy divisions rapidly (e.g., ten divisions in ten days). We will need to work out new plans, consistent with prospective changes in the U.S. force posture, in conjunction with our allies.

There will be a need to maintain some ground, air, and naval forces at a high state of readiness to deal with contingencies outside of Europe, but the bulk of the forces need not be at high levels of alert. Many can be in the reserves or national guard. However, those forces that do enter conflict in areas outside of Europe must increasingly be trained and equipped to deal with sophisticated weaponry.

The Roles of Nuclear Forces

The nuclear forces will be affected by changed circumstances. Two broad issues will shape future nuclear strategy. The first issue has to do with the role of nuclear forces. There are some who would narrow the role of such forces to deterring nuclear attack on the United States, abandoning the concept of extended deterrence, which they believe is no longer needed or is no longer credible.[3]

The view reflected in this report is that nuclear weapons still have an important role to play in deterring war, not just nuclear war, even if the conventional balance is improved. A number of factors have prevented a major war affecting the interests of the great powers and their allies for more than forty years. Although the role played by nuclear weapons is debated, it is apparent to me and many others that nuclear weapons have played an important role in deterrence of war, and we should be very cautious about abandoning that role even if the threat now appears less imminent. Nuclear weapons have also played a role in reassuring our allies of our commitment to their defense; such reassurance can help curb pressures for proliferation. The need for reassurance is particularly important when the world faces so much uncertainty and change. Finally, nuclear weapons, by providing a sense of security, can facilitate the process of developing a new security relationship between East and West. This is a new role, not yet well understood, but it will be of growing importance.

A second issue is how to maintain deterrence in new conditions. Deterrence consists of posing penalties and risks to a prospective aggressor so that he will judge the use of force to be unrewarding. Nuclear forces can cast a menacing shadow, creating doubts about the risks that would confront an attacker. The possibility that nuclear weapons could be invoked, no matter how remote, introduces incalculable risks and thus contributes to deterrence of war at any level.

It is crucial to back up the threat of escalation with the capability to carry it out. For nuclear weapons to play their role in deterrence and war termination, we must be able to present an adversary with the credible prospect of nuclear escalation should U.S. territory or interests, or those of our allies, be threatened. If the penalties and risks that we pose are to be credible, there must be some probability that they will be invoked. Therefore, the response must be proportional to the issues involved. If there are no options for force employment other than a massive, general attack on cities, the threat becomes self deterring. Thus, we should continue to have a variety of nuclear options available to respond to aggression, ranging from very limited attacks to large-scale responses.

As long as the Soviet Union retains nuclear weapons, these weapons will remain part of the deterrence picture. In our future thinking about potential hostilities with the Soviet Union, we must take account of changing Soviet views

and conditions. I have suggested above that Soviet views of nuclear weapons are changing. The Soviet political leadership appears to be appropriately awed by the prospect of nuclear war. This does not make such a conflict inconceivable, but it does mean that the Soviets are likely to approach any crisis that could lead to a major war with caution, as indeed they have in the past.

No one can be certain what deters the Soviet Union. Because of this uncertainty, we have maintained a capability to attack a variety of targets under a variety of circumstances, and we should continue to do so. But if nuclear forces are sharply reduced in the future, we will not be able to cover as broad a range of targets; it will be necessary to make choices. I suggest in Section V that in these circumstances the United States should reduce the priority given to counter-nuclear targeting and adopt a new emphasis on targeting projection forces.

With the emergence of a new conventional balance in Europe, it should be possible to deter aggression (now an even more remote possibility) with reduced reliance on nuclear weapons. I have noted above that the risk of a surprise attack is receding. The emphasis in our planning should be on a possible conflict that follows mobilization of Soviet forces. The objective of our strategy under this scenario is to convey to the Soviets the notion that proceeding with mobilization would involve risks incommensurate with their objectives. Our first line of defense would be our own mobilization capabilities, but if these fail to deter, or if a purely conventional defense proves inadequate, nuclear weapons should be in the background.

As long as hostilities remain on the conventional level, we want the idea of nuclear use to be credible but distant. Resorting to massive retaliation over increased mobilization activity would be unbelievable; it would also be an overreaction on our part. It is important to gear the threat we present to the situation at hand. Consequently, employment of nuclear weapons should be a last resort; if they are employed, there should be plans and capabilities that would permit us to strike selectively. These plans should focus on conventional military forces (e.g., tactical air bases, naval bases, troop concentrations, and logistics centers). Such targeting should also be designed to limit civilian casualties and other collateral damage.

The *N*th Country Problem

In light of the ever-growing membership in the nuclear club, the prospect of hostilities with smaller powers possessing nuclear and other advanced weapons must also be considered. In this case the United States should be able to present an aggressor with the risk of losing his advanced military capability, whether it be chemical, biological, or nuclear. Israeli raids against Egypt's missile facilities during the 1967 Yom Kippur war and against Iraq's Osirak nuclear reactor in 1981 are examples of the kinds of tactics that the United States may employ. Nonnuclear means can be used in these instances, as the Israeli example has shown.

However, the U.S. nuclear posture also will be an important factor. It will be desirable for the United States to retain a nuclear capability that is significantly larger and more sophisticated than that of any *N*th country. Such superiority will serve to rid the leadership of the *N*th country of the delusion that their nuclear capability will act as an equalizer in dealing with the United States. Strategic defenses can also be important in conveying such a message. The limited numbers of missiles that an *N*th country is likely to possess will make it extremely difficult for them to overwhelm even limited defenses and launch a successful strike.

This growing concern with *N*th country military arsenals could lead to a de facto floor under superpower arms reductions. As *N*th countries develop larger nuclear capabilities, the superpowers will need to consider limiting reductions in their arsenals, thereby possibly defining how far cuts can go in any follow-on to the Strategic Arms Reduction Talks (START) agreement.

IV. A NUCLEAR FORCE STRUCTURE IN THE TWENTY-FIRST CENTURY

What kind of force structure is required to support the extended deterrence/reassurance/enablement roles described above? Many will argue that the details of the nuclear posture—what kinds of weapons, where they are deployed, and how they might be employed—are relatively unimportant so long as some nuclear weapons exist. I have referred to this view as the glob theory; a more sophisticated term is existential deterrence. If we adopt existential deterrence, the details of the nuclear posture are relatively unimportant. This report proceeds from the assumption that details are important, that not just any glob of nuclear weapons will meet the goals and roles described above. A suggested nuclear posture, which is designed to maintain extended deterrence, is described below. Obviously, there are a number of possible nuclear postures that could be consistent with that goal; I postulate a specific posture here to lend concreteness to the discussion.

This posture assumes that both public attitudes and arms-control negotiations are likely to result in significant reductions in nuclear forces in the next decade. We should welcome reductions if they result in equitable and stable outcomes. As the level of nuclear forces is reduced, the forces that remain must meet very high standards of survivability and safety. We will no longer be able to rely as much on numbers to ensure survivability as we have in the past. In strategic arms-control negotiations we should actively promote greater first-strike stability, meaning more survivable postures. If we are successful in this goal, the result will be an erosion of counterforce capabilities on both sides. This will inevitably have an impact on employment policy, which we discuss further in the next section of this report. In the new threat environment there can also be changes in the readiness of nuclear forces that may permit substantial savings. I will discuss this further in connection with the postulated force posture.

In thinking about the future nuclear force posture, there are two reasons for looking several decades into the future. First, nuclear forces have long lead times and long useful lives. Many strategic systems being planned today are likely to be in the force posture three or even four decades from now. Second, while substantial reductions in nuclear forces seem likely, for reasons noted above, it would be neither prudent nor practical to make such reductions in a few years. If we want to ensure that future force postures will be balanced and stable, we want to negotiate the terms of reduction carefully, and such negotiations will take time.

The projected nuclear force postures shown in Tables A-1 (strategic forces) and A-1a (theater nuclear forces) in the Appendix cover the period 1995 to 2005 in five-year increments. It is assumed that a START agreement will be negotiated soon and will take effect around 1995. A further assumption is that budgetary constraints and public pressures are likely to force additional reductions in strategic forces and that such reductions would be desirable, providing political relations with the Soviet Union continue to improve. In these circumstances it seems reasonable to assume that strategic nuclear warheads will be reduced to about 5,000 (that is a real 5,000, not START counting rules) in the next decade, and perhaps to 3,000 by the year 2005.[4]

The force that is left should be configured to meet three criteria: maximum safety and survivability, improved capabilities to attack Soviet general purpose forces deployed in the field, and reduced collateral damage. In addition, the force will have to be developed and maintained at lower budget levels. The reasons for seeking forces with improved capabilities against Soviet projection forces are described in the following section on employment policy.

Living with lower force levels demands that a higher priority be placed on the survivability of the remaining forces in order to preserve first-strike stability. However, this force does not have to be configured to withstand a "bolt from the blue" attack. Such an attack has never been very likely; it is less likely now. Given the changing political relationship and the changing conventional balance discussed above, it is

reasonable to assume that we would have ample strategic warning. Even if Soviet policies undergo a sharp reversal in the short run, we will almost certainly have warning of that; it will not happen overnight. In the projected environment it is more important that the forces we have be able to sustain alert for some time after receiving strategic warning, for there can be no guarantee of tactical warning. It also is important that the posture permit responses to warning that would not further exacerbate a crisis.

The following guidelines are suggested for the nuclear force posture and related arms-control strategy in the coming decade (the force levels are summarized in Table A-I).

Submarine-launched ballistic missiles (SLBMs) remain our most survivable force. Thus, in the arms-control negotiations we should seek to protect as many SLBMs on as many boats as possible as we go to lower levels. The force posture in Table A-I contains sixteen Trident boats in 2000 with an equal mix of C-4 and D-5 warheads. To meet arms-control limits of 5,000 warheads and maintain these boats with 24 missiles each, the number of warheads per missile will need to be reduced to 8 in the year 2000 and 4-5 in the 2005 projection. Given that a surprise attack seems increasingly unlikely, not as much of the force needs to be at sea in day-to-day alert. We should aim to keep one-third of this force at sea. This would permit reduction of crews to one per boat, effecting substantial savings. However, most of the submarine force should be able to surge rapidly.

The employment policy that is described in the next section of this report does not demand as much hard-target capability as now is planned. Thus, we suggest that one-half of the sixteen boats be equipped with the D-5 and one-half with the C-4. Over the longer run it would be desirable to deploy even lower yield warheads in the SLBM force, better adapted to attacking projection forces with minimum collateral damage. Another long-term modification that would add to stability would be the deployment of a number of smaller ballistic-missile submarines, perhaps with as few as six missiles. While current budget pressures and the cost of such a program does not make deployment feasible in the near term, research and development should be considered.[4]

Intercontinental ballistic missiles (ICBMs) have proven more difficult to make survivable than SLBMs, but have some unique characteristics that we should attempt to preserve. For example, they are more flexible in limited options than SLBMs. It is only realistic, however, to plan for a reduced ICBM force. Such a force should be highly survivable for a prolonged period after being alerted rather than immune to a bolt from the blue attack. Both Midgetman and M-X could be deployed to meet this criterion. Ideally, the single-warhead Midgetman would be the preferred choice, since de-MIRVing of ICBMs would enhance stability. As suggested above, a much higher priority should be placed on survivability, as compared to counterforce. The small ICBM, however, will be an expensive option. In the present budget environment, cost considerations are likely to govern, so we project the small ICBM phasing in slowly. In 2000 we have a mix of M-X and single-warhead missiles; however, by the year 2005 we show the ICBM force composed solely of small, single-warhead missiles.

Bombers will remain an important strategic asset if we focus on targeting projection forces because they have some inherent capabilities against imprecisely located targets that missiles do not have, and response times for this target set are measured in hours, not minutes. This suggests the need to retain a substantial, modern bomber force beyond the life of the B-52. The B-1 program will be completed in a few years, and the costs of this program are largely sunk. We should seek to retain as many B-1s as survive peacetime attrition. Because the B-1 has limitations as a pene-

trating bomber, the B-2 program should be continued but, given its high cost and the changing threat, a smaller number should be purchased and rates of production reduced. A force of forty B-2 for 2000 and 2005 is postulated. If we keep a substantial bomber force, bomber basing needs to be improved because bombers must be able to go on a high state of alert and sustain it for some time if there is a crisis. As noted above, the warning time is likely to be hours or even days, rather than minutes; therefore, bombers could be operated by reserve forces with some budget savings.

Theater nuclear forces (TNF) have traditionally been governed primarily by political considerations. This will be true in the future as in the past. The changing political atmosphere in Europe, particularly in Germany, already has left its mark on TNF employment policy. In May 1990 the NATO Nuclear Planning Group (NPG) stated that "there is a diminishing need for nuclear systems of the shortest range."[5] Political considerations also have dictated the point at which short-range nuclear weapons would be used, as NATO's recent adoption of a "no early first use" policy and the proposed withdrawal of nuclear artillery demonstrates.

It seems clear that U.S. theater nuclear forces in Europe will be reduced significantly during the coming decade. If ground-based systems are withdrawn, the prospect of retaining any TNF in Europe will dim further. Public antinuclear sentiments are likely to grow now that East and West Germany are unified and Soviet forces will be leaving Eastern Europe and the CFE agreement will bring conventional forces into "parity." However, the shape of the future European security system is most unclear at this juncture. United Kingdom and French nuclear forces may well play a larger role, but they cannot substitute for U.S. nuclear forces in deterring the Soviets. It remains highly desirable, therefore, to retain a reduced U.S. theater nuclear posture in Europe as long as that is politically feasible because TNF continues to provide an important link in the deterrent chain. This fact seems to be recognized, at least by NATO defense ministers. A recent communique of the NPG emphasized this assumption: "For the foreseeable future, deterrence of war will continue to require ... an appropriate mix of ... conventional and nuclear forces."[6]

The most likely candidate for retention is an air-delivered missile with a stand-off capability. If Germany ultimately decides to eliminate nuclear weapons from its territory (and this is by no means certain), these systems could be based in the United Kingdom and perhaps elsewhere. If pressures increase to remove all nuclear weapons from Europe, about 1,000 air-delivered weapons should be retained in U.S. inventories for redeployment for use with dual-capable aircraft.

Submarine-launched cruise missiles could be very useful against projection forces and in maintaining the linkage between longer range forces and the European theater as TNF deployed in Europe are reduced. For this reason, and because of the great difficulty in verifying the distinction between nuclear and conventional cruise missiles, they should be protected from arms-control limitations. However, ways must be found to make this system more responsive to the needs of the theater commander if it is to play an important role in theater deterrence.

Strategic defense deployments should be deferred, but a vigorous research and development (R&D) program continued. A limited defense against ballistic missiles now appears to be feasible, and such a defense could limit damage from small attacks by the Soviet Union and Nth countries. Such a defense would be costly. Furthermore, there is a fundamental conflict between extended deterrence at lower force levels and strategic defenses. On the one hand, strategic defenses can be far more effective if strategic offensive forces are reduced. On the other hand, comparable Soviet defenses will work well against our limited options and thus complicate

the problem of making extended deterrence credible. Strategic defense deployments seem very unlikely to obtain political support in the current environment; therefore, on balance we would defer deployment of active missile defenses. Further R&D could remove many uncertainties about cost and effectiveness that still persist, and could help to deter new Soviet strategic programs. We would continue a substantial R&D program and protect the option to conduct necessary testing. This may require modifications to the Antiballistic Missile treaty. We also would press for development of deployable theater defenses that could deal with *N*th country threats, and would support deployment of such defenses if they prove cost-effective.

V. TRENDS IN NUCLEAR EMPLOYMENT POLICY

Over the next several years it will be both necessary and desirable to reshape nuclear targeting policy. Much greater emphasis should be given to targeting Soviet nonnuclear military forces, particularly those forces that the Soviet Union employs to project power abroad. Changes will be necessary for several reasons.

First, the overall U.S. strategic stockpile is likely to decline substantially as a result of public attitudes towards nuclear weapons, budget pressures, and arms-control negotiations. The target set to be covered will not decline as rapidly, and this will force a reconsideration of targeting priorities. For many years strategic forces have been targeted against four broad classes of targets: counterforce (i.e., counter-nuclear); leadership (this includes command centers and related communications); so-called other military targets (i.e., nonnuclear forces); and urban-industrial targets. Over the years priorities for targeting have changed, but in recent years the first two classes of targets have received the highest priority, based on the assumption that threats to destroy enemy nuclear forces and national leadership have a high deterrent value. These priorities influence weapon system requirements (e.g., increased demands for accuracy/yield combinations that can destroy hard targets). In recent years they have also been an important driver of command, control, communications, and intelligence (C³I) requirements (e.g., for rapid target acquisition and retargeting). As our stockpile of weapons declines, it will not be possible to cover all of these target classes with the same priority that we do today.

Second, some targets have become increasingly difficult to destroy. Because nuclear forces and leadership are assets that the Soviets value highly, they have taken very effective measures to protect their forces and command and control. Their national command authority can deploy rapidly to protected underground shelters or mobile facilities. Their strategic forces, most notably the rail-mobile SS-24 and the road-mobile SS-25, are becoming increasingly survivable. Our capacity to find these targets is declining and, thus, the threat to severely damage them is becoming less credible as a deterrent. While the United States is attempting to compensate for the defensive measures that the Soviets have undertaken—for example, by improving the yield and accuracy of our weapons and the capacity to acquire targets and retarget rapidly—the measures required will be very expensive, and in a period of increasing budget stringency, it looks like a losing battle.

Third, some targets that we have traditionally covered are declining in importance. The Soviets have extensive plans to disperse their forces prior to war initiation. Thus, many military bases that were traditionally targeted in our plans would have little value once a war began because the facilities will have been vacated. (On the other hand, there will be many targets with continuing military value, and these are the ones we should focus on.) Because the Soviets have maintained large reserve stocks of equipment in dispersed and protected facilities, attacks on war-supporting industries will have little military effect on the outcome of a short war.

Fourth, the theater nuclear forces, which have been used traditionally to cover Soviet projection forces, will decline both in numbers and capability. The modernization of the ground-

based theater nuclear stockpile in Europe no longer is realistic because recent political developments in the Soviet Union and Eastern Europe have radically reduced Western perceptions of the threat. Furthermore, it is apparent that theater nuclear forces based on the continent of Europe and at sea will be further reduced over the next several years. Thus, if we are to maintain a credible nuclear threat to Soviet projection forces, more of this mission will have to be accomplished with strategic forces.

Even if the above factors did not compel a change in targeting policy, there are reasons why we should want to place more emphasis on projection forces.

First, being able to threaten Soviet projection forces is directly relevant to the goal of deterring war, not just nuclear war. The objective of having a nuclear capability to threaten Soviet projection forces is not primarily a tactical one (i.e., to win a battle), but rather a political one (i.e., to persuade the aggressor to change his calculations and either not to attack in the first place or to cease and desist if he has). Deterrence depends on being able to hold at risk assets that the potential aggressor values and doing that credibly. Given the trends described above, threats to nuclear forces and leadership are becoming less credible. A threat to projection forces, which the Soviets also value highly, can still be quite credible if seen in the appropriate context. In the first instance, deterring conventional attack is a task for our own conventional forces, and this task should become easier with prospective changes in the conventional balance. Thus, we should not have to rely on nuclear forces for deterrence of conventional attack as much as we have in the past. But arms control will not remove all asymmetries, and past history suggests that conventional deterrence alone is not reliable. Nuclear weapons pose risks that have far more political impact than conventional deterrence standing alone.

Second, a new emphasis on targeting projection forces is consistent with a changing force paradigm in which the dominant threat is reconstitution of military capabilities. War will be [illegible] less likely, and surprise attack far less plausible as forces are reduced and withdrawn from forward deployment. These conditions are becoming reality at a quicker pace than we had envisioned even a few months ago. But war has not become impossible, nor is it likely to become so for as far as we can see in the future. While in the recent past we were concerned with the possibility of short-warning attacks for limited objectives, the more likely future case is a larger-scale attack that follows weeks, if not months, of mobilization. Specifically, we believe that if the Soviet Union is contemplating remobilization to attack in the future, it should face the prospect that if it attacks, nuclear weapons could come into play. But to make such a deterrent threat credible, nuclear weapons planning needs to be reshaped and restructured to deter war, not just nuclear attack. There should be options for very limited use of nuclear weapons against bases and logistic facilities that would support aggression beyond Soviet borders, specifically tactical air and naval bases, major troop concentrations, and logistic facilities. In developing such plans we must take into account the possibility that it may be politically unacceptable to target Soviet forces in Eastern Europe with nuclear weapons, even in an invasion, if the Soviets have not used nuclear weapons themselves. Thus, we must have options that include initial use on Soviet territory.

Third, avoiding attacks on Soviet strategic forces provides for greater stability. In the future nuclear regime, stability should become an even more important criterion for force design than in the past. Among other things this implies very high survivability for the nuclear forces and their supporting infrastructure. We want our own forces to be highly survivable in a crisis situation and, if we really value stability, we want the other side's force to be highly survivable too. We do not want him to be tempted to launch a preemptive strike in a crisis because he concludes that this is a better option than waiting. If first strike stability is to be a major strategic objective, there must be high survivability for the nuclear forces of both sides. It means that deliberate nuclear disarming attacks become implausible, if not impossible.

Fourth, an emphasis on targeting projection forces provides for a more moral posture. The proposed policy ultimately envisions much lower force levels, and thus the prospect of eventually reaching levels that could preclude Armageddon. Meanwhile, if neither side's nuclear forces are threatened, incentives for a first strike will be lowered. The suggested policy also would place more emphasis on targeting combatants rather than civilians. And if weapons were specifically designed and targeted for the purpose of selectively destroying combat forces, there is the potential for reduced collateral damage.

Fifth, the proposed policy provides a less demanding technological challenge than the present policy. We have noted that the present policy requires attacking hardened command centers and mobile missiles. The technological demands to achieve these objectives with confidence are very great and will likely prove to be unachievable under prospective budget constraints. Finding and attacking projection forces in the field presents its own technical challenges, but these are not as demanding. For example, it is not necessary to find and attack all threatening units or to destroy the entire unit in order to achieve meaningful military results. Initial strikes should focus on one or two of the most threatening salients and the bases supporting those thrusts. In addition, planning should take into account the impact of both conventional and nuclear weapons on projection forces. In this respect there is a difference from measuring the impact of nuclear weapons on other types of targets that are not subject to nonnuclear attack. Finally, given the psychological impact of nuclear weapons, very few weapons may suffice to achieve the desired political objective—to cause the aggressor to reconsider the costs and risks of aggression. Later in this report there is an example of how such limited attacks might be designed.

Finally, the focus on projection forces provides a desirable coupling between nuclear and nonnuclear forces. The threat of nuclear use against general purpose forces is intended to supplement the role of conventional forces. The nuclear mission does not have to stand alone, as does the mission of destroying nuclear forces and leadership. And if we are able to maintain adequate nonnuclear forces, including the capability to mobilize these forces rapidly, the United States will become less dependent on nuclear forces in the future.

VI. AN ILLUSTRATIVE NUCLEAR TARGETING ANALYSIS

In the Appendix, I describe three illustrative targeting policies (cases), which are based on the assumption that there will be substantial reductions of strategic nuclear forces by the year 2000, and further reductions by 2005. Postulated strategic force levels under this assumption are described in Table A-I of the Appendix. A similar projection for theater nuclear forces is in Table A-Ia. These projections are offered as plausible developments in the political-military context described above, not as a prediction or as a preferred outcome. Of course, there could be many variants in the size and mix of forces.

The three illustrative targeting plans are displayed in Tables A-II, A-III, and A-IV. They are not recommendations but postulates designed to stimulate thinking and analysis. The target lists are notional and differ with each case, depending on the underlying strategy of the targeting plan and the number of weapons available. While these are not "real" target lists, I believe that the figures used are reasonably close to reality. However, I did not use classified data in order to permit easier handling and wider distribution of this report. The plans are described in greater detail in the Appendix. They are summarized here.

The first case is designed to illustrate how we might alter existing employment policy if we were forced to carry it out with 5,000 weapons. The priorities remain as they are today with the focus on nuclear forces and leadership targets. The postulated force is 5,000 weapons with 10 percent in reserve. While the bulk of the weapons are targeted on nuclear forces, I have tried in all of these cases to avoid creating a caricature in which all weapons are allocated to a single category. This case, as does the others,

has two scenarios: one is a first-use scenario with forces intact, and the second is a retaliation scenario with partially damaged forces.

The second case takes the same number of weapons but shifts the targeting to Soviet projection forces, which I have divided into four categories: tactical air bases, naval bases, troop concentrations, and lines of communication (LOC). A troop concentration is an identified target that might require one weapon (e.g., a few tanks or an artillery battery). An LOC target is a facility or transportation node that would require a single weapon. In this case the number of weapons allocated to a secure reserve force is increased to 20 percent of the initial inventory.

The third case deals with a 3,000-weapon inventory. Targeting is distributed over all classes of targets, but fewer targets can be covered than in the first two cases because of the smaller initial inventory. In this case 15 percent of the weapons are held in reserve in the first-use scenario and 10 percent in the retaliation scenario.

I draw several tentative conclusions from this analysis:

- At a level of 5,000 weapons it will become necessary to reduce significantly either target coverage (i.e., the number of targets covered) or targeting redundancy (i.e., the number of weapons per target). This will force a reconsideration of targeting priorities. Nevertheless, at a level of 5,000 weapons we can adequately meet the goals and roles for nuclear weapons that are postulated in Section III, assuming that Soviet forces are at roughly the same level as our own.
- On the other hand, this preliminary analysis suggests that a level of 3,000 weapons would not be sufficient to support an extended deterrence strategy. At this level it is necessary to rely primarily on countervalue targeting for deterrence. As suggested above, I believe this is not consistent with an extended deterrence strategy. At the 5,000 weapon level we cannot do a very good job of counterforce targeting, but we are not able to do that very well today. Therefore, I conclude that, as forces are reduced, there should be a higher priority given to Soviet projection forces and a reduced priority to counter-nuclear targeting. The reasons for this conclusion are elaborated on in Section V.
- With lower force levels the multiplier effect of good C³I becomes even more important. For example, it is easier to accept less targeting redundancy if we can follow individual weapons and ensure that they have arrived at their targets.
- As force levels decline, the survivability of individual missiles and aircraft becomes even more important to stability.

VII. ADDITIONAL WORK NEEDED

The force projections and the targeting analysis that I have used are very crude. It was done to illustrate what a START II force could look like and how it might be targeted. Many other variants can and should be run. Furthermore, this analysis focused on target coverage. I did not have the resources to do damage analysis. I hope this will be done by others, using this work as a starting point.

One might to look at several possible START II outcomes. There also should be more attention devoted to defenses than I could do here. I would like to elaborate further on how the threat of nuclear use could affect reconstitution of forces, and just what should be targeted if Eastern Europe is off-limits. Furthermore, the targeting should be redone using far more sophisticated models and techniques than I had available to me. We also need to consider how much cross targeting is required to hedge against failures in one system.

NOTES AND REFERENCES

1. Senator Sam Nunn, from U.S. Senate floor speech, 29 March 1990.

2. For example, see the famous article by Robert McNamara, McGeorge Bundy, George Kennan, and Gerard Smith, "Nu

clear Weapons and the Atlantic Alliance," *Foreign Affairs* (Spring 1982).

3. The figure of 3,000 is being used increasingly by defense analysts as an ultimate target for START reductions. It has little analytical support, although a Brookings Institution study in 1988 did examine this level. See Michael M. May, George F. Bing, and John D. Steinbruner, *Strategic Arms Reductions* (Washington, D.C.: The Brookings Institution, 1988).

4. For example, former Ambassador Ralph Earle has suggested such a program, pointing out that a successful attack on an M-X missile would eliminate ten warheads, whereas a successful attack on a Trident boat could eliminate almost 20 times that many. Ralph Earle, "START Should Not Be the End," *Defense News* (29 February 1988).

5. From NATO Nuclear Planning Group communique, quoted in the *New York Times* (5 July 1990).

6. Quoted in the *Washington Post* (13 May 1990), p. A7.

APPENDIX

A DESCRIPTION OF THE TARGETING PLANS

The projected nuclear force postures used in the analyses are summarized in Tables A-I and A-II. The rationale for these postulated forces is set forth in Section IV.

The analysis covers three cases, with two scenarios in each case. The first case assumes an inventory of 5,000 weapons and emphasizes targeting of Soviet nuclear forces (Table A-III). Ten percent of the inventory is allocated to a secure reserve force. The second case also assumes an inventory of 5,000 weapons, but the emphasis in targeting is projection forces and the secure reserve forces to 20 percent of the total force (Table A-III). In the third case the inventory is only 3,000 weapons, and there is a secure reserve of 15 percent, which declines to 10 percent following a Soviet first strike (Table A-IV).

In each of the three cases there are two scenarios. The first scenario assumes U.S. first use of nuclear weapons. The size of the first strike and the targets differ in each case, depending on the targeting objectives. The second scenario is a retaliatory case in which some U.S. forces have been lost to a Soviet first strike. The targets for retaliation vary in each case depending on the objectives of the plan.

Because in all cases the inventory of U.S. weapons is far lower than it is today, the number of targets covered has had to be reduced. Some of the reductions in the target list result from the comparable START reductions in Soviet strategic forces. In other cases I have made my own rough judgments as to how to reduce the target list.

In all cases more than one weapon is allocated for each target, and this is specifically indicated in the tables as a weapon allocation ratio. This allocation is to take account of three factors: the hardness of certain nuclear and leadership targets that requires more than one weapon per target, the reliability of the weapons systems (generally 80 percent), and air and missile defenses. The amount of this cross targeting is less than is practiced in current strategic planning, but this is one of the penalties of reduced force levels, particularly pronounced in case 3. The impact of reduced cross targeting can be minimized by using weapons with high single-shot kill probabilities and by improved C³I that could track weapons to targets and permit replacing only those weapons which we know fail to reach their targets.

It is assumed that all ground-based TNF have been removed from Europe by the year 2000. Air-delivered weapons remain in 2000, but are eliminated by 2005. Even if some air-delivered nuclear capability remained in the theater, it would not be prudent to count on the survivability of many of the bases and the aircraft from which these weapons would be delivered. Submarine-launched cruise missiles also remain, but we have assumed that their role would be in the secure reserve force. Thus, in cases 2 and 3 there is provision for a capability for selective employment in the strategic forces so that they can, in effect, execute selective employment plans.

In all cases 200-250 leadership targets are covered. Even though it is very difficult to target the national leadership with high confidence of success and even though we probably should not attack those targets while there is a chance to negotiate, I believe they should be covered because the threat to destroy leadership has a very high deterrent value. In light of recent changes in the Soviet political system we need to reconsider what leadership targets should receive priority (i.e., party or administrative leadership).

In all cases 500-600 urban-industrial targets are covered. The threat to urban-industrial targets represents the ultimate deterrent. However, employing this threat would almost certainly bring comparable retaliation on the United States. For this reason I treat the

execution of this option as a last resort in all scenarios, withholding execution even in the retaliation scenarios.

Case 1

The assumptions on which case 1 is based are given below.

1. A START II agreement has reduced the strategic forces on both sides to 5,000 actual warheads. The U.S. force is weighted to sea-basing (see Table A-1). The Soviet force is weighted towards mobile land-based missiles. While the forces differ, both are highly survivable.

2. There are two scenarios. In both scenarios, 10 percent of the inventory is assigned to a secure reserve force. That force is not specifically targeted. The first scenario assumes initial use by the United States. The attack of about 3,200 weapons concentrates on Soviet strategic forces and leadership, but some general purpose forces also are targeted. About 1,300 weapons are witheld for retaliatory strikes, primarily against urban-industrial targets, general purpose forces, and mobile strategic forces that cannot be identified and targeted in a first strike.

3. In the retaliation scenario the focus still is on targeting Soviet nuclear forces, but fewer forces can be targeted because the United States has fewer weapons surviving. Furthermore, it is assumed that the Soviets will have launched their most vulnerable forces in the first strike, leaving fewer counter-nuclear targets. In the initial retaliation there is a withhold on urban-industrial targets and national leadership, and on some air defenses associated with these targets. Also, there is a withhold on some general purpose force targets that are not directly involved in the current operation.

4. Weapons are allocated so that the strategic force targets receive priority. However, there is less cross targeting than there would be today because of the limited inventory. For the same reason, fewer targets are covered, but it also is assumed that the number of Soviet strategic forces has been reduced in accord with a START II agreement, and thus there are fewer targets in this category than there are today.

Case 2

1. The approach in case 2 is quite different from that in case 1. We begin with an initial inventory of 5,000 weapons, but in this case 20 percent is allocated to a secure reserve force. We assume that the many uncertainties in the strategic situation, including the presence of many mobile targets and the existence of a number of small nuclear powers, dictates a larger reserve force. Furthermore, the targeting priorities are changed to place much greater emphasis on projection forces. This is accomplished by allocating weapons to a larger number of conventional force targets and reducing the number of nuclear force targets. Still, several hundred nuclear force targets are covered, but far fewer than in case 1.

2. In the first scenario the United States initiates limited strikes against Soviet general purpose forces. Initial strikes are intended to restore deterrence by changing the calculations of the attacker, not to defeat the attack as such. However, this requires that the attacks have a dramatic military impact, thus demonstrating both a capability and resolve to severely disrupt the attacker's strategy. At the same time we want to demonstrate restraint in these initial attacks and to leave a great deal still at risk. Thus, initial strikes are limited to the most threatening ground, air, and naval forces.

3. The initial attack is directed at a limited number of tactical air bases, naval bases, ground force targets, and logistics bases and choke points that support the most threatening thrust or thrusts. The precise forces to be attacked and the scale of the attack would depend on the scenario. A key question is whether to plan to attack ground forces in the field that are difficult to target and thus are not included in today's plans. I believe an effort should be made to develop capabilities to target maneuver units in the field, but even if this proves impossible there are a number of fixed targets

that can be attacked with the objective of severely impeding the objectives of Soviet projection forces.

4. Another issue is whether initial strikes would be in the Soviet Union or in the area where Soviet forces are attacking. We cannot be sure what would be required by a given scenario. Thus, we should have plans with sufficient flexibility to permit either withholds or use on friendly territory and on Soviet territory.

5. There are provisions for a follow-on strike in this scenario that could include both restrikes on initial targets or strikes on new targets. Substantial forces are withheld for intrawar deterrence. These should be the most survivable forces, namely the submarines. Thus, bombers and ICBMs are used in the initial and follow-on strikes.

6. The second scenario is a retaliation case. In this case we assume that the Soviets launch a counterforce strike against our land-based nuclear forces, which leaves us with 3,650 strategic weapons. In retaliation we attack a broad range of targets, but withhold against urban-industrial targets, national command and control, and some general purpose forces that are not relevant to the current scenario.

Case 3

In case 3 the initial inventory is 3,000 weapons of which 15 percent is placed in a strategic reserve. The focus in targeting is on projection forces and leadership, but the list covered is substantially less than in the first two cases because the inventory of available weapons is reduced. In the retaliatory case we are forced to reduce the secure reserve force to 10 percent to obtain even minimal target coverage, and a high percentage of the surviving weapons are allocated to countervalue targets.

Table A-I. Projected Nuclear Force Postures: 1995-2005
Strategic Forces

	1995		2000		2005	
	Launchers	Warheads	Launchers	Warheads	Launchers	Warheads
Minuteman II	..	..	..	..	..	..
Minuteman III	400	1200	200	200	.	..
Peacekeeper (M-X)	50	500	50	500	..	..
Midgetman	..	..	100	100	300	300
Subtotal	450	1700	350	800	300	300
Poseidon C3/C4	96	768	..	..	..	..
Trident C4	192	1536	192	1344	192	960
Trident D5	120	960	192	1536	192	768
Subtotal	408	3264	384	2880	384	1728
Total Missiles	858	4964	734	3680	684	2028
B-52 G/H (Non-ALCM)	..	..	..	..	..	..
B-52G (ALCM)	..	..	..	..	..	..
B-52H (ALCM)	93	1860	..	..	..	..
B-1B	97	1940	90	900	60	600
B-2	10	100	40	400	40	400
Subtotal, bombers	200	3900	130	1300	100	1000
TOTAL - Strategic Forces	1058	8864	864	4980	784	3028

Table A-1a. Projected Nuclear Force Postures: 1995-2005
Theater Nuclear Forces

	1995		2000		2005	
	Launchers	Warheads	Launchers	Warheads	Launchers	Warheads
Europe						
INF Missiles	0		0		--	
Lance/Follow-On to Lance	0		0		--	
Artillery	500		0		--	
Aircraft/Gravity Bombs	1000		500		0	
Short-Range Attack Missiles/Tactical	0		0		0	
Maritime Aircraft/Weapons	1000		200		200	
Tomahawk Land Attack Missiles/Nuclear	400		400		400	
Subtotal	2900		1100		600	
Other Than Europe						
Lance	35		0		0	
Artillery	750		500		0	
Aircraft/Gravity Bombs	1000		750		500	
Short-Range Attack Missiles/Tactical	0		0		0	
Maritime Aircraft/Weapons	1500		500		200	
Tomahawk Land Attack Missiles/Nuclear	350		350		350	
Subtotal	3635		2100		1050	
TOTAL Theater Nuclear Forces	6535		3200		1650	

Table A-II. Case 1 - Targeting 5,000 Strategic Warheads - Counterforce Emphasis

Initial Use
Reserve Force of 10% = 500
Balance to target: 4,500

Target:	Total Target Set	Weapon Allocation Ratio	Total Weapons Allocated	Weapons Employed			Withhold
				Initial Strike	Follow-On Strikes: Restrike	Follow-On Strikes: New Targets	
Tactical Air Bases	110	1.2	132	110	Not Applicable		22
Naval Bases	15	1.2	18	15			3
Ground Force Targets	250	1.2	300	250			50
Lines of Communication	250	1.2	300	250			50
Strategic Missiles	750	2.0	1500	1250			250
Strategic Bomber Bases	350	1.2	420	400			20
Strategic Command-Control	200	1.2	240	225			15
Nuclear Support	350	1.2	420	400			20
Leadership	250	1.5	375	250			125
Air and Missile Defense	65	1.2	78	60			18
Industry	600	1.2	720	0			720
Total	3190		4503	3210			1293

Retaliation:
Surviving Weapons 3,650
Reserve Force of 10% = 365
Balance to Target: 3,285

	Total Target Set	Weapon Allocation Ratio	Total Weapons Allocated	Retaliatory Strike	Withhold
Tactical Air Bases	100	1.2	120	90	30
Naval Bases	15	1.2	18	15	3
Ground Force Targets	125	1.2	150	120	30
Lines of Communication	125	1.2	150	120	30
Strategic Missiles	450	2.0	900	900	0
Strategic Bomber Bases	300	1.2	360	360	0
Strategic Command-Control	200	1.2	240	240	0
Nuclear Support	250	1.2	300	300	0
Leadership	250	1.5	375	250	125
Air and Missile Defense	60	1.2	72	60	12
Industry	500	1.2	600	0	600
Total	2375		3285	2455	830

Table A-III. Case 2 - Targeting 5,000 Strategic Warheads - Emphasis on Projection Forces

Initial Use
Reserve Force of 20% = 1,000
Balance to Target: 4,000

Target:	Total Target Set	Weapon Allocation Ratio	Total Weapons Allocated	Weapons Employed			
				Initial Strike	Follow-On Strikes: Restrike	Follow-On Strikes: New Targets	Withhold
Tactical Air Bases	250	1.2	300	12	12	12	264
Naval Bases	25	1.2	35	2	2	2	29
Ground Force Targets	550	1.2	660	12	12	24	612
Lines of Communication	550	1.2	660	12	12	24	612
Strategic Missiles	100	2.0	200	--	--	--	200
Strategic Bomber Bases	200	1.2	240	--	--	--	240
Strategic Command-Control	150	1.2	160	--	--	--	160
Nuclear Support	350	1.2	420	--	--	--	420
Leadership	250	2.0	500	--	--	--	500
Air and Missile Defense	65	1.2	85	10	10	10	55
Industry	600	1.2	720	--	--	--	720
Total	3090		4000	48	48	72	3832

Retaliation:
Surviving Weapons 3,650
Reserve Force of 20% = 730
Balance to Target: 2,920

	Total Target Set	Weapon Allocation Ratio	Total Weapons Allocated	Retaliatory Strikes	Withhold
Tactical Air Bases	150	1.2	160	110	50
Naval Bases	16	1.2	20	15	5
Ground Force Targets	350	1.2	420	360	60
Lines of Communication	350	1.2	420	360	60
Strategic Missiles	100	1.5	150	150	0
Strategic Bomber Bases	200	1.2	240	240	0
Strategic Command-Control	100	1.2	120	120	0
Nuclear Support	300	1.2	360	360	0
Leadership	250	1.4	350	250	100
Air and Missile Defense	50	1.2	60	60	0
Industry	500	1.2	600	0	600
Total	2366		2920	2045	875

Table A-IV. Case 3 - Targeting 3,000 Strategic Warheads

Initial Use
Reserve Force of 15% = 450
Balance to Target: 2,500

Target:	Total Target Set	Weapon Allocation Ratio	Total Weapons Allocated	Weapons Employed: Initial Strike	Follow-On Strikes: Restrike	Follow-On Strikes: New Targets	Withhold
Tactical Air Bases	150	1.2	180	12	12	12	144
Naval Bases	15	1.2	16	2	2	2	10
Ground Force Targets	400	1.2	480	12	12	24	432
Lines of Communication	400	1.2	480	12	12	24	432
Strategic Missiles	0	1.2	0	--	--	--	0
Strategic Bomber Bases	0	1.2	0	--	--	--	0
Strategic Command-Control	50	1.2	60	--	--	--	60
Nuclear Support	200	1.2	240	--	--	--	240
Leadership	250	1.2	300	--	--	--	300
Air and Missile Defense	60	1.2	72	10	10	10	42
Industry	600	1.2	720	--	--	--	720
Total	2125	--	2548	48	48	72	2380

Retaliatory Strike:
Surviving Weapons 2,250
Reserve Force of 10% = 225
Balance to Target: 2,025

	Total Target Set	Weapon Allocation Ratio	Total Weapons Allocated	Retaliatory Strike	Withhold
Tactical Air Bases	150	1.2	180	165	15
Naval Bases	15	1.2	18	15	3
Ground Force Targets	300	1.2	360	340	20
Lines of Communication	300	1.2	360	340	20
Strategic Missiles	0	--	0	--	0
Strategic Bomber Bases	0	--	0	--	0
Strategic Command-Control	24	1.2	28	28	0
Nuclear Support	160	1.2	192	192	0
Leadership	200	1.2	240	180	60
Air and Missile Defense	40	1.2	48	40	8
Industry	500	1.2	600	0	600
Total	1689		2026	1300	726