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Dennis McDowell

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START and US Strategic Forces

DENNIS McDOWELL

Recent commentary on provisions of the Strategic Arms Reduction Talks (START) treaty entailing a 50-percent reduction in strategic offensive arms has included doubts about the prospective accord's impact on US strategic forces. The deep reductions that are now agreed to in principle by the United States and the Soviet Union will undoubtedly require careful adjustment of the US strategic force posture, as well as continued strategic force modernization, in order to preserve a robust and survivable strategic offensive deterrent. The purpose of the START negotiations is to achieve this objective at lower, and equal, overall force levels that will strengthen strategic stability in the long term.

Some of the debate about START has revolved around the prospective pact's degrading effects on US strategic force survivability which, in the view of certain analysts, belie the stabilizing nature of the proposed reductions.[1] However, when all relevant facts are considered, these alleged flaws are not of major strategic significance, and the costs are far outweighed by the benefits to US security. START's value will ultimately be weighed in the broader context of East-West relations to include, for example, Mikhail Gorbachev's announcement on 7 December 1988 that Soviet armed forces would be unilaterally reduced by 500,000 men over a two-year period, including the withdrawal and disbandment of six tank divisions now stationed in East Germany, Czechoslovakia, and Hungary.[2] This development is positive, expecially if it represents new Soviet willingness to negotiate further reduction of Soviet force advantages. However, the START treaty must first stand on its own merits for it to deserve ratification. In order to evaluate START objectively, a brief review of the status of the draft treaty is necessary.

A Framework for Evaluation

The basic outlines of the evolving treaty include the following agreed elements:

• The two sides—the United States and the Soviets—will be limited to 1600 strategic nuclear delivery vehicles each.[3] This means that the sum of each side's deployed ICBMs, deployed submarine-launched ballistic missiles, and heavy bombers cannot exceed 1600.

• Each side is limited to 6000 *accountable* warheads on their delivery vehicles (some warheads may not be accountable—more on that later).

• Within the limit of 6000 accountable warheads on each side, not more than 4900 of them can be placed on ballistic missiles.

• With respect to the Soviet SS-18 heavy ballistic missiles, not more than 1540 warheads can be placed on 154 of them. These particular 1540 would count against the total Soviet warhead limit of 4900.

• Each side is limited in its total ballistic missile throw-weight to an amount 50 percent below the Soviets' current level (a missile's throw-weight is the weight it can deliver on target at operational ranges).

Other proposed elements that are key to determining the final shape of the treaty remain unagreed. For example, the United States proposes an additional ICBM warhead sublimit of 3000 to 3300. This would provide the necessary predictability to Soviet force structure and provide a cap specifically on the total warheads on ICBMs, which are prompt and very accurate delivery systems. The Soviet Union, aiming to constrain US strengths, has conditioned its acceptance of an ICBM warhead sublimit on the United States' limiting its total submarine-launched ballistic missile warheads to the same number, and has proposed a sublimit of 1100 weapons on heavy bombers. Such a restriction on delivery vehicles that are relatively stabilizing retaliatory systems is a proposition that no prudent US negotiator would accept.

The Soviets also have proposed to permit agreed levels of mobile ICBM launchers and their warheads (they currently have deployed well over 100 such systems), and have outlined concepts for verification. The United States, which will not be in a position to deploy any mobile ICBMs until the 1990s, proposed in 1985 that these systems be banned unless agreement could

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Dennis McDowell is presently assigned to the Defense and Space Division of the Strategic Programs Bureau, US Arms Control and Disarmament Agency. He served as an advisor on the US Delegation to the Strategic Arms Reduction Talks in 1982 and as a senior ACDA advisor on the Strategic Arms Negotiating Group, US Delegation to the Nuclear and Space Arms Talks, from 1985 to 1988. A graduate of the University of Missouri, Columbia, Mr. McDowell previously served in the US Navy and has been with ACDA since 1976.

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be reached on effective verification measures that would make mobile ICBM deployments less destabilizing, and that would reduce to a minimum the military significance of any covert illegal mobile missiles.

Additionally, the sides have been unable to agree on satisfactory verification means for limits on long-range, nuclear-armed, sea-launched cruise missiles. This and the other difficult issues outlined above were the main obstacles impeding the progress needed to complete a treaty in 1988, and they will be paramount in determining the shape of a final accord or direction of any future negotiation under the Bush Administration.

Beyond these unresolved numerical limits have been several secondary but still-important issues that have remained unagreed through the late stage of the negotiations. For example, disagreement persists over accountability, within the 6000 warhead limit, of air-launched cruise missiles on heavy bombers and of reentry vehicles on future types of ballistic missiles, as well as over the specific method for defining and calculating accountable throw-weight. A US proposal for limiting modernization of existing heavy ICBMs remains to be agreed. Other critical details of verification, including the inspection regime, remain to be completed. These technical issues, some of which involve the fine print in the treaty, are significant enough such that a definitive evaluation of the real impact of the START treaty is premature until they are resolved and the ink, even in the fine print, is dry.

Will the Window of Vulnerability Widen?

The prospect that significant reductions in strategic arms could increase, rather than decrease, the threat to the US silo-based missile force and therefore undermine stability is a serious consideration. ICBM vulnerability has been a driving factor in strategic arms negotiations and strategic modernization programs for 20 years. More than any other issue, it has served as the fulcrum for debate and the primary measure of meaningful arms control and a credible deterrent. Therefore, recent estimates that the ratio of Soviet hard-target killing warheads to US silos could increase under START from about 3:1 to 4:1 must be addressed—but kept in perspective. Although such a changed force relationship would be possible under hypothetical START force structures, it does not necessarily follow that US land-based missiles will be more vulnerable.

US missile silos have been theoretically vulnerable for a decade. The growing vulnerability of silos, whether US or Soviet, has been the result of technological advance, specifically as a function of missile accuracy improvements. No practical arms control solution for vulnerable silos exists short of eliminating MIRVed ICBMs—an idea that is attractive in theory but impractical for prudent military planners. In any event, an increased ratio to 4:1 is simply not militarily significant; effective destruction of US silos requires

only a two-on-one attack, given the current accuracies of Soviet ICBMs. With further increases in accuracies and missile reliability, perhaps a ratio of less than 2:1 will be sufficient in the future. Attempting to adjust this force ratio through arms control was a relevant exercise in the 1960s and early 1970s, but it is much less so today because the inevitable, and irreversible, vulnerability of existing silo-based ICBMs has long since occurred. Therefore, the inference that START is not in the US interest because it will not result in a reduction in the vulnerability of US silos is mistaken.

Arms control agreements cannot reverse quickly or eliminate strategic problems stemming from technological trends or past strategic neglect. Although there are no quick technological fixes to missile silo vulnerability, certain programs such as mobile basing and limited defenses could prolong the viability of the land-based missile force.[4] In any event, a more meaningful evaluation of START can be found in its longer-term stabilizing benefits.

The US Objectives in START

The arms control situation that the United States faced at the beginning of this decade was one of negotiated agreements that only capped the growth in strategic weapons and which, in fact, permitted and codified growing destabilizing asymmetries in the strategic balance. One of those asymmetries was the growth in Soviet hard-target kill capability, the primary reason for the threat to US silo-based missiles today.

The underlying concept in the US proposals advanced during the START negotiations has been a long-term process of tailoring reductions and future force structures on both sides so as to reduce those asymmetries and to constrain future threats to the overall survivability of remaining strategic forces. In this regard, the US-proposed START sublimits of 4900 and 3000, the agreed 50-percent cut in heavy ICBMs, and the severe throw-weight limit do address important long-term threats to stability and deterrence.

The 3000 and 4900 warhead sublimits will constrain, respectively, the potential growth in Soviet prompt hard-target kill capability residing with land-based ICBMs, and the longer-term growth in total ballistic missile hard-target kill capability in an era when submarine-launched ballistic missiles (hereinafter referred to as SLBMs) as well as ICBMs will become more accurate. The 50-percent cuts in heavy ICBMs and overall throw-weight will ensure that prompt hard-target kill capability cannot be overly concentrated in large MIRVed ICBMs, which have the greatest first-strike potential.

What these benefits mean in reality is a limit on the total number of ballistic missile warheads that can be targeted promptly for various counterforce missions. For example, because of the warhead limit of 4900, the Soviet Union's capability to conduct a barrage attack against US bombers during take-off or against US ICBMs and SLBMs during launch will be constrained.

Should mobile ICBMs become an important component of US forces in the future, the US-proposed warhead constraints would reinforce the inherent survivability of such mobile systems. The agreed throw-weight limit also would contribute significantly to limiting barrage attack against mobile ICBM deployment areas.

The US-proposed ban on mobile ICBMs has been viewed by some commentators as a contradictory US position. The United States has maintained a preference for banning mobiles because of the extreme verification problems (which for a long time were not addressed seriously by the Soviet side in the negotiation) and the military risks posed if a side were to cheat successfully in a significant way. What is important is that the US approach would substantially enhance the survivability of mobile ICBMs should the verification problems be solved. With respect to the latter consideration, US and Soviet delegations in Geneva were actively engaged in a dialogue on mobile ICBM verification for much of the past year based upon elements of common ground identified at the Moscow Summit in June 1988.

In the absence of a treaty, the United States will be in a position to move in the future to more survivable ICBM basing modes. During the 1980s research and development on a small, mobile ICBM has proceeded, and more recently priority development of a railway-garrison basing concept for the MX missile was initiated by the Reagan Administration which aims to meet fully the requirement for a survivable and stabilizing land-based system.

Additional research under the rubric of the Strategic Defense Initiative has also placed the United States in a better position to unilaterally address the problem of silo vulnerability. SDI research could provide the basis for a future decision to deploy limited defenses to protect silos against attack, regardless of the final feasibility of 100-percent-effective territorial defense. Limited defenses based on advanced technologies could bolster deterrence by making it more difficult for the Soviets to successfully attack US ICBM silos.

Although the United States will continue to grapple with the problem of silo vulnerability, it should not be equated with overall strategic force vulnerability. In addition to ICBMs, the US strategic Triad finds its strength in

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the long-lasting, inherent survivability of the submarine-based ballistic missile force, flexible US strategic bomber forces whose pre-launch survivability and penetrability continue to improve, and the mutually reinforcing nature of the Triad that complicates Soviet targeting and militates against a successful first strike against the United States.

Preserving the Sea-Based Leg—the Bulwark Deterrent

Another concern about the prospective START agreement is that because of the high warhead counts on US SLBMs and the large number of launch tubes (24) on the residual force of Trident submarines, the size of the US force of nuclear-powered ballistic missile submarines (called SSBNs) will be constrained to a number insufficient to ensure force survivability and capability. It is no surprise that under a 50-percent-reductions agreement, the United States will have to relinquish a significant number of SLBM launchers in order to maintain a balanced Triad following reductions. Further, the total number of operational SSBNs following reductions will be fewer than the current number of 36, perhaps down to 20 (which would carry a total of 3840 warheads). However, there are significant operational factors and system capabilities that soften the adverse impact of a reduced size of the SSBN force.

For example, the average at-sea, on-patrol time of an all-Trident force, even in reduced numbers, will be greater than the average at-sea, on-patrol time of the current US submarine force. The Trident submarine is quieter and thus more survivable than older SSBNs. The average warhead load per SSBN in an all-Trident submarine force will be greater than today's force, even with only the eight reentry vehicles per Trident I (C-4) missile and Trident II (D-5) missile that were agreed to at the Washington Summit in December 1987. The inference of SSBN force insufficiency under START is thus not correct. An all-Trident II SLBM force, planned for the turn of this century, will have a significant hard-target kill capability to offset, and largely equalize, that of Soviet ICBMs, and will be more capable than the current US SSBN force by an order of magnitude. It will be a more credible sea-based deterrent capable of holding at risk hardened Soviet military targets, as opposed to the current US SLBM force which poses an assured destruction capability only against countervalue (soft) targets.

The question of future SSBN force survivability cannot be taken lightly, of course, as this leg of the Triad is, and will continue for the indefinite future, to be the most invulnerable. Even if there are somewhat fewer submarines on patrol at any single point in time, the argument that the ratio of Soviet attack submarines (SSNs) to US SSBNs will increase, and thus make US SSBNs more vulnerable, is fallacious. It is well known that the primary mission of Soviet SSNs is the protection of Soviet SSBNs near Soviet waters and thus far away from US SSBN patrol areas. Further, in the most likely scenario for a

US-Soviet nuclear conflict—that arising from a serious crisis or conventional conflict—a US forward-deployed maritime strategy, if ever adopted and implemented, would make it more difficult for Soviet SSNs to seek out US SSBNs in their patrol areas, far from Soviet SSBN bastions where Soviet SSNs must focus their efforts to protect their SSBN force in the event of war.

Moreover, the offense-defense antisubmarine warfare competition involves many more factors than simply the number of submarines. For example, because of the greater range of Trident C-4/D-5 missiles, and the greater endurance of the Trident submarine, US SSBN patrol areas will steadily increase in size and distance from the Soviet Union, thus further enhancing the invulnerability of the force. In addition, extensive US investment in antisubmarine warfare research, development, and deployment programs, including continuous SSBN survivability improvements, suggests that the US SSBN force will remain comfortably survivable after reductions, despite significant increases in Soviet submarine capabilities and investment in antisubmarine warfare research.

The argument that START limits are in the US interest only if the United States restructures its SSBN force toward smaller and more numerous SSBNs is not supported by the facts. Indeed, in the late 1970s, alternative submarine designs of smaller subs than Trident were studied, but were determined to be uneconomical despite the hypothetical advantages they might have offered. In retrospect, early termination of the Trident building program, the most successful US strategic program in recent times, would have been folly.

The Air-Breathing Leg and the START "Fine Print"

With respect to the third leg of the Triad, another mistaken conclusion about START is that the reductions will result in an unacceptably low number of US heavy bombers, owing to restrictive air-launched cruise missile (ALCM) counting rules and a sublimit of 1100 on bomber weapons which was proposed by the Soviet Union. Such a sublimit, if it were accepted, would be just cause for concern. Unfortunately, there is a popular misconception that there will be such a sublimit in the final treaty, based perhaps on a misleading arithmetic calculation (6000 accountable warheads minus 4900 accountable ballistic missile warheads equal 1100 bomber weapons). However, a more important reason for this misconception could be the failure to reconcile the theoretical limit on accountable ALCMs of 1100 (i.e. in the event the United States chose to have both 4900 deployed ballistic missile warheads and an all-ALCM-carrying heavy bomber force) with the heavy bomber weapon counting rule (agreed to by the United States and USSR during the Reykjavik mini-summit in 1986), which indirectly limits other heavy bomber weapons.

Let us note initially that the Soviet proposal for a sublimit of 1100 on bomber weapons is inconsistent with the agreed Reykjavik counting rule,

which stipulates that each heavy bomber, regardless of the number of gravity bombs and short-range attack missiles (SRAMs) it actually carries, will count as only *one warhead* in the 6000-warhead limit. The consequence of this agreed rule is that the United States would be permitted the sum of ALCMs and bomb/SRAM-carrying heavy bombers equal to 6000 minus the total deployed ballistic missile warheads. Thus, if the United States chose to structure its forces such that it retained all 4900 of its maximum-allowed ballistic missile warheads, then the United States could, if it chose, retain ALCM-carrying heavy bombers with 1100 accountable ALCMs for a total of 6000 accountable warheads. Obviously, this configuration would leave no room for heavy bombers with gravity bombs or SRAMs.

This calculation, however, involves a US force structure decision that is quite different from establishing a firm 1100 limit on all individual bomber weapons. As a practical matter, under a 6000-warhead limit the United States will be permitted to retain a significant number of non-ALCM heavy bombers that carry bombs and short-range attack missiles on the condition either that accountable ALCMs are kept at a level below 1100 or that deployed ballistic missile warheads are kept below 4900. For example, either the United States or the Soviet Union could have perhaps an additional thousand bomber weapons on about a hundred non-ALCM heavy bombers and still retain a force of 1000 accountable ALCMs. Further, the United States could choose to deploy more than 1100 accountable ALCMs and additional non-ALCM heavy bombers at the expense of reducing deployed ballistic missile warheads by the same number.

Finally, it should be kept in mind that given the current US force structure emphasizing MIRVed SLBMs and the likely retention of a significant number of them as a proportion of the 6000 aggregate, it will be difficult for the United States to deploy its proposed treaty limit of 1600 delivery vehicles. What this means is that if the United States decided in the future that it was in its interest to shift the balance of its Triad forces significantly to bomber forces, it could easily do it by building additional non-ALCM carrying penetrating bombers such a the stealth B-2. Each such bomber (which will presumably be capable of carrying several bombs and short-range attack missiles) would count as only one unit in the 6000 limit. The practical consequence of this liberal counting rule for non-ALCM heavy bombers is that, after reductions to agreed levels, if the US dismantled one Minuteman III missile (which has three warheads), it could as compensation build three penetrating bombers that could carry several times that number of weapons. This is an example of a US advantage that would not be so apparent without seeing the fine print of the draft treaty.

US bomber forces are further protected by the ALCM counting rule that the United States proposes—ten per heavy bomber—which represents a realistic average bomber loading. There has been a tendency on the part of

START critics to apply ALCM counting rules from SALT II to an evaluation of START, which leads to the erroneous conclusion that the US bomber force would be excessively constrained. Under the US approach, the number ten is simply an arbitrary attribution rule, and not an actual loading limit; thus, the United States could have ALCM-carrying bombers which would each count as carrying ten ALCMs within the 6000 limit but which could in fact carry *more* than ten ALCMs. This favorable ALCM counting rule, in terms of its operational impact on the US bomber force, is consistent with the long-standing US position in strategic arms negotiations that the asymmetry resulting from Soviet air defenses and the US lack of the same should be taken into account in any formula for limiting heavy bomber weapons.

It should be clear that the US framework for START is fashioned so as to enhance strategic stability by permitting either side, and hopefully encouraging both sides, to shift from reliance on hyper-velocity ballistic missiles to greater reliance on slower-flying and recallable bomber forces, which are less provocative in times of crisis.

US Strategic Triad Preserved

The prospective reductions in strategic offensive arms provided by the START treaty will permit sufficient US forces and force flexibility to retain a viable, robust Triad that is survivable and capable of carrying out its mission of deterrence based on the threat of offensive retaliation. Strategic modernization will continue to be necessary, but the problems facing the United States in maintaining an effective and stable deterrent should be eased after 50-percent reductions. The prospective START treaty embracing all elements of the US proposal, if concluded early in the Bush Administration, could serve as a benchmark for planning and modernizing US strategic forces, thus making a significant contribution to future US security.

NOTES

1. Some recent prominent articles critical of START include: Henry Kissinger, "START: A Dangerous Rush to Agreement," *The Washington Post*, 24 April 1988; and James L. George, "The Two Track Dilemma in START Negotiations," *Strategic Review*, 16 (Winter 1988), 35.

2. See Michael Dobbs, "Gorbachev Announces Troop Cut of 500,000," *The Washington Post*, 8 December 1988, pp. A1, A30.

3. Henceforth in this article, the term "delivery vehicles" refers to "strategic nuclear delivery vehicles."

4. Other steps that could be taken to marginally reduce land-based ICBM force vulnerability are: (1) "downloading" of existing silo-based ICBMs (e.g. removing a warhead from each Minuteman III ICBM and redeploying it elsewhere so that the same number of total warheads could be distributed over a larger number of delivery vehicles); or (2) deploying new silo-based ICBMs with less "fractionation" (i.e. fewer reentry vehicles per missile) to achieve the same purpose. In both cases the objective is to raise the ratio of aimpoints to attacking warheads and thus raise the costs of any attack against the US land-based missile force. Similar options exist for SLBMs.