

Comments on De-alerting of Strategic Nuclear Forces

by

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Here I comment on de-alerting of strategic nuclear forces, and in particular on UNIDIR/2012/6 by Hans Kristensen and Matthew McKinzie¹, henceforth dubbed [1]. Particularly useful, too, is the 1998 paper by Thomas Karas, published 2001², henceforth dubbed [2]. The primary benefit ascribed to de-alerting is the presumed reduced likelihood of unintended or inadvertent nuclear war between the United States and Russia.

In the absence of effective missile (and bomber) defense assessed as significantly reducing the potential destruction by a force of nuclear warheads, nuclear weapons are regarded primarily as a *deterrent* to nuclear attack, by the credible threat of unacceptable destruction in response to a nuclear strike. The concept of deterrence is fraught with problems—how much destruction is adequate, and with what assurance? What targets are acceptable as valued by the leadership and permitted by the laws of war? And exactly *what* is to be deterred—nuclear strike on the homeland, or on allies, or non-nuclear attack?

¹ *Reducing Alert Rates of Nuclear Weapons*, by Hans M. Kristensen and Matthew McKinzie, UNIDIR/2012/6, at <http://unidir.org/files/publications/pdfs/reducing-alert-rates-of-nuclear-weapons-400.pdf>

² *De-alerting and De-activating Strategic Nuclear Weapons*, by Thomas H. Karas, Sandia National Laboratories, April 2001, at <http://prod.sandia.gov/techlib/access-control.cgi/2001/010835.pdf>

Alert forces are those that can be relied upon for launch within a designated response time, but Kristensen and McKinzie speak also of *reducing operational readiness*.

Hundreds of billions of dollars have been expended on nuclear armaments in the United States, and in Russia and the Soviet Union. It is natural for those who have fought for those funds and spent their lives creating and managing those armaments to believe they have a value even far in excess of their cost. However, their value has nothing to do with their cost and may even be negative. Consider a personal computer (PC) bought in 1981 for \$5,000 with 64 kilobytes of memory (and a 10 megabyte hard disk drive bought a year later for \$1000). In 2013 a PC with 500 times the speed and 60,000 times the memory (and including a hard disk drive with 100,000 times the storage capacity) costs \$500. Any theorem relating cost and enduring value is wrong. **HOWEVER**, a 1962 nuclear weapon that could kill a million people can still do so— but the value of this capability may have changed and may even have changed sign.

Secretary of Defense Robert S. McNamara quantified the deliverable nuclear explosives that would surely be adequate to deter the Soviet Union as 400 1-megaton warheads, at a time when the United States was on its way to build a much larger force. McNamara explained that the excess could be used for “damage limitation” in case deterrence failed, although that was not the primary mission of the force. Damage limitation, quite naturally, acquired a life of its own, in the United States as well as, probably, in the Soviet Union, driving up costs, imposing constraints and delays on the deterrent force, and introducing instability into what might have been a reasonably stable deterrent confrontation.

Thus, during the administration of President Richard M. Nixon, I opposed the accuracy improvement of the Polaris/Poseidon force of submarine-launched nuclear-armed ballistic missiles (SLBMs) as destabilizing just because they would have the apparent capability of destroying Soviet silo-based ICBMs. Survivable in their deployment at sea, the U.S. SLBMs were an ideal component of the deterrent force, but I (and even some of the technical leaders of U.S. Navy Special Programs) argued against increasing their capability of damage limitation—i.e., first-strike capability against the land-based Soviet

forces. Had we won the argument, we would have had a better approach to arms control, but the benefit would have been only temporary, as GPS and general improvement in inertial navigation systems would have made accuracy almost cost-free,

The world is where it is, as described in [1], and no credible approaches have been identified for confidently and transparently spoiling the accuracy of ballistic missiles. Note that this would be quite different from the hoped-for increase in stability and security from de-alerting or reduction in operational readiness.

On February 7, 1988, I hand-delivered to the U.S. Secretary of Defense this typed note,

THE HONORABLE FRANK C. CARLUCCI, SECDEF

DEAR SECRETARY CARLUCCI:

IN YOUR SPEECH TO THE WEHRKUNDE CONFERENCE 02/07/88, YOU PLAN TO SAY:

" In the next decade, Soviet and American missiles can be made accurate enough to destroy most military targets with a conventional warhead--all but those that are deep underground, super-hard, or of unknown location. "

IT IS FAR EASIER, HOWEVER, TO PROTECT A POTENTIAL MILITARY TARGET AGAINST SUCH ATTACK THAN AGAINST NUCLEAR WEAPONS. NUCLEAR EXPLOSIONS MUST BE KEPT A MILE AWAY (OR 100 METERS, IF THE TARGET IS A HARDENED SILO), BUT A FEW METERS DECEPTION OR STANDOFF WILL DEFEAT NON-NUCLEAR ATTACK. BUILDING A FACILITY UNDER A TENT, OR "REACTIVE ARMOR" WILL TOTALLY DEFEAT THE DENSE LONG-ROD PENETRATORS ON WHICH MANY BASE THEIR HOPES FOR NON-NUCLEAR STRATEGIC WEAPONS.

A SIDE THAT GAVE UP ITS NUCLEAR WEAPONS IN THE EXPECTATION OF DETERRING WAR BY ADVANCED NON-NUCLEAR WEAPONS MIGHT AS WELL SURRENDER TO COUNTER-CITY NUCLEAR BLACKMAIL BY THE OTHER SIDE.

IN MY OPINION, WE SHOULD GET ON WITH SINGLE-WARHEAD MIDGETMAN IN MODEST SILOS, THAT CANNOT BE DESTROYED BY THE OTHER SIDE WITHOUT DISARMING ITSELF RELATIVELY. IN THIS WAY IT IS SELF-PROTECTING.

My own experience in discussing arms control and de-alerting with Russian technical, political, and military experts is that they are knowledgeable and thoughtful about such matters, but that they tend to exaggerate the threat from potential U.S. non-nuclear precision strike weapons such as existing air-launched cruise missiles and, especially, hypersonic boost/glide missiles, for which bizarre justifications are contrived by their supporters in the United States. As indicated in the note delivered to Secretary Carlucci, it is eminently feasible to use local active defense to protect silos against any of these non-nuclear threats, and such defenses are both practical and stabilizing.

Military analysts and planners in Russia and the United States have specific focus and measurements of success. They are concerned not only with stability against accidental or unintended war, and catalytic war, but also with avoiding vulnerability to “preventive strike”—an intentional first strike intended to be largely disarming, with full knowledge that some retaliatory forces may survive to be launched against deterrent targets—in the case of France and the U.K., Moscow.

Finally, the analysis of [1] that shows deterrence being maintained even in the example of a full disarming strike of U.S. re-alerted missiles against Russian ICBMs assumes that the re-alerted missiles are targeted against the most valuable U.S. targets—presumably key cities such as Washington and New York. As the seat of government, Washington would be a legitimate deterrent target under the laws of war, which otherwise forbid targeting civilian populations. In a 2001 paper³ I wrote,

Of course, in a democracy it is ultimately the responsibility of the citizenry to maintain control for the nuclear weapons, just as it is over any other important aspect of a society. From this point of view, the golden rule would permit and even encourage maintaining international security by means of [mutual assured destruction]MAD, if it works. The golden rule would not support a democracy maintaining its own security by an assured destruction capability against a dictatorship, where the people who would bear the brunt of a retaliatory attack have no influence on the government. Under those circumstances, efforts are typically made to ensure that it is the leadership and the people in authority who suffer, but

³ Enrico Fermi and Ethical Problems in Scientific Research, by R.L. Garwin (2001), at <http://www.fas.org/rlg/011019-fermi.htm>

such destruction may extend to the entire society. That is not, however, its purpose. People have long struggled with the moral aspects of this problem. The U.S. Roman Catholic bishops judged that deterrence was provisionally acceptable only in the context of major efforts to reduce and eliminate the nuclear threat. In their words, "'sufficiency' to deter is an adequate strategy; the quest for superiority must be rejected."

And in a 1991 report⁴ a Note on page 61 indicates, “*For comparison, Case 4 shows that the ability to reallocate specific surviving weapons to the most valuable 21 targets would enable damage to be maintained with 22 surviving weapons rather than the 40+ of Cases 1a or 2 or the 220+ of Case 3a.*” This rather cryptic summary indicates the power of self-knowledge of which of one’s own force survive, so that they can be retargeted most effectively. Adopting such an approach greatly reduces the spread between the overall value held at risk by the undiminished deterrent force and that held at risk by the deterrent force residue after receiving a first strike from the other side; therefore, it helps to deter the first strike.

⁴ *The Future of the U.S.-Soviet Nuclear Relationship*, by the Committee on International Security and Arms Control, National Academy of Sciences (1991), at <http://www.nap.edu/openbook.php?isbn=0309045827>

In light of these general comments on de-alerting, where do I stand on the proposals of [1], of which there seem to be two. One is described in Annex A (p. 38 ff), “A Phased Approach to De-alerting.” This does not seem easier to initiate on either side than the more traditional (and stalled) negotiations on the Joint Data Exchange Center agreed between the two parties in June 2000 and negotiated in considerable detail. So while I agree that the phased approach of Annex A is desirable, I think it is unlikely to happen.

To my mind, a more promising line is the specific proposal to de-alert two-thirds of the Minuteman-3 and all of the SS-19 missiles. I suggest that de-alerting two-thirds of the Minuteman-3 and also two-thirds of the SS-19 would be much easier to sell to the Russian side and would make very little difference to the American side. And rather than removing the warheads and storing them separately, I would resort to the less intrusive approach of burying the silo cover under thousands of tons of earth—the amount to be determined by study and by agreed re-alerting approaches. One needs to be aware of special-purpose drag-line systems that could be set up to mine off the

earth pile in short order, in contravention of a possible agreement on cooperative re-alerting.

After all, much of the U.S. and Russian strategic force is de facto de-alerted and even vulnerable, such as the strategic submarines in port, and strategic aircraft on just a few air bases. It is unlikely that exactly the optimum fraction and elements of the force are de-alerted, and rather than engage in philosophical arguments as to whether de-alerting is good or bad, it would be useful to determine not only the amount of the force that is unavailable to be launched within minutes, but the desirable degree of transparency regarding force status.

[at the end of my presentation, I added the following:]

1. If the United States had no warning satellites, radars, etc., could we still have a stable deterrent posture? In fact, China has built far fewer missiles and nuclear warheads than they were capable of doing and seem quite satisfied with their nuclear deterrence of the United States.

2. There are serious problems with some de-alerting approaches—for instance if nuclear warheads are removed from silo-based missile and stored at a central location, the retaliatory forces are far more vulnerable to a first strike. In fact, a preventive strike need not be made with fast-reaction nuclear forces, but could be carrying out an order given two months before.

3. Official doctrine for initiating and terminating war sometimes defies logic. For instance, Caspar Weinberger as President Reagan's secretary of defense stated⁵ that U.S. security depended on its ability to guarantee that more Americans would survive a nuclear exchange than Soviets. But could the United States be judged to have won a nuclear war if 5 Americans survived and only 2 Soviet citizens?

Thank you for your attention.

⁵ See "[U.S. Nuclear Weapons and Nuclear Explosion Testing](http://www.fas.org/rlg/040309-drell.htm)," by R.L. Garwin, Drell Lecture at Stanford University, March 9, 2004 (lecture and slides), at <http://www.fas.org/rlg/040309-drell.htm>
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