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ANALYSIS OF ALTERNATIVE ABM LIMITATIONS IN SALT

The advantages and disadvantages of various ABM limitations are considered from the US point of view. These include a National Command Authority (NCA) defense of Washington, a defense of several Minutemen wings, a freeze of the present Moscow system either with no improvements allowed or with no limitation to its upgrading and, finally, a zero ABM level on both sides. The preferences to which these considerations lead are then set forth.

I. ABM for Washington

Although many configurations are possible we assume an allowed system would consist approximately of two PAR faces, two MSR's and 100 Spartan and Sprint interceptors.

Advantages to the United States

1. "A defense of Washington would limit blackmail by a small nuclear power."

This argument cannot be given much weight since the number of significant U.S. targets is so great that "blackmail" effectiveness is not much different with or without Washington being protected.

2. "A defense of Washington would offer at least some protection against a nuclear accident."

This is true only if the accidentally launched missile is targeted for Washington and is not heavily decoyed. Considering the likely size of the target list in the Soviet SIOP, the probability on an accidentally launched missile being directed against Washington is rather small. However, if Wahington does become protected by an ABM system, the number of Soviet missiles targeted on Washington will probably be substantially increased and therefore the probability of an accidental launch on Washington would be increased. Clearly, this increase might offset the protection that the ABM would provide: but a definite assessment cannot be made.

3."A defense of Wahington would give us a few additinnal minutes for decision-making during an initial attack period."

Unfortunately, the effectiveness of the ABM against a Soviet attack is not sufficiently high to insure even a few additional minutes of protection so far as our planning goes.

Moreover, our plans will have to assume that the Soviets, if they so desire, can completely overwhelm the NCA ABM and not permit any additional survival time by increased targeting and salvo size on Washington. Our additional targeting on Moscow as a result of their ABM deployment may serve as a guide to their reciprocal action.

4. "A deployed ABM defense will provide us with important production and deployment experience which would be significant in case of treaty abrogation."

This benefit would only occur if at a later date we expanded our ABM by producing and deploying the very same system and components. Once a system of this complexity is deployed flexibility is lost. One cannot test a deployed system in most of the ways that testing can be done on R and D ranges. By maintaining an active R and D effort and field testing we would be gaining more meaningful experience with BMD technology and would be better prepared to shift to a more modern system if deployment were required at a later date.

5. "A limited ABM defense system would provide a base for expansion if the treaty were abrogated."

This option would buy a small amount of lead time if we should ever want to go to a full system of the same design. But the longer the period that passes the less likely that an enlarged system would be compatible with the old one. Thus the head start this provides is small and vanishes with time.

6. "Even a geographically limited ABM defense would provide some damage limitation in the case of a nuclear attack, especially if the agreement limited the total size of the opponents' offensive force as well."

The extent of possible damage limitation is seen to be very small indeed when it is recognized that with a fixed force of roughly current size, the Soviet Union could, by re-targeting and upgrading their force, readily overcome the small protection that a NCA AMB defense would provide. At best, the BMD would neutralize 10-50 of the Soviet warheads which may exceed 2,000.

Disadvantages to the United States of NCA ABM Deployment

1. The cost would be difficult to justify, particularly in a time of tight military budgets. This cost would approximate that of Safeguard Phase I: $4.5 billion plus development and fabrication of warheads for the interceptors.

There would be considerable political complications for both Congress and the Administration in arguing that the defense, if it was workable, should be limited to Washington only while the Soviet Union's corresponding defense would be centered on its most populous region.

3. An NCA BMD deployment would open the question of defining equivalence of the U. S. and the S. U. systems. Equivalence assessments are very difficult to make because:

a. Different geographies, threat corridors and radar coverage are involved for each NCA.
b. Different technology is utilized in each of the two systems. It is unlikely that agreement could be reached on the relative effectiveness of American and Soviet radars, interceptors, warheads etc.
c. The effective threat to each of the NCAs is different.
d. The value of Moscow's NCA can be assessed as being different from that of Washington's since it is the Soviets' largest population center as well.

4. As a consequence of the difficulty of defining equivalence for the Moscow and Washington BMD's, we may find ourselves in an escalating race with the Soviet Union even if defense is limited to the NCAs. Our initial BMD would be of a later technological vintage and have wider coverage than the present Soviet system. This in turn may force the Soviet Union to build a newer system which would include 360° coverage, higher ~~#####~~ frequency and more agile radars, as well as higher performance and larger numbers of interceptors. Developmnets in this direction would raise suspicion here that such moves were upgrading their air defense system to an ABM capability. The net result would be to destabilize the arms limitation agreement that had been reached.

Thus it appears that the advantages claimed for NCA ABM defense diminish and in some cases vanish upon inspection and, in any event, the residual advantage accrues to the Soviet Union as well, in some cases proportionately more. The disadvantages appear substantial and may substantially prolong the time needed to reach agreement and threaten the durability of an agrement if reached.

II. ABM Defense for Minutemen

In view of the disadvantages of an NCA ABM defense it is useful to ask if the U.S. might not be better off if it could negotiate and ABM defense of some Minutemen, such as Safeguard Phase I, toward which it is now working, in place of an NCA BMD. We list the advantages that might be claimed and our assessment of them.

1. "Safeguard Phase I would provide us with production and employment experience as well as a base for expansion in the case of treaty abrogation."

The severe limitations described under points 4 and 5 of the Advantages (Part I) of an NCA BMD apply equally here.

2. "Safeguard Phase I would strengthen our deterrent by protecting a part of our retaliatory force."

This claim would have force only if the Soviet planners of a counterforce strike would not compensate by retargeting more of their missiles on our defended missiles. How many of their missiles might be expended in overwhelming such a system is estimated differently by various analysts, but it is in any case a small fraction of the 100 interceptors that would be allowed. Even with perfect operation of the BMD system it could not be as high as 100 because some of the Sprints will defend MSRs. Moreover, one can expect preferential targeting against the radars so that they would probably be destroyed before all the interceptors were fired. But more damaging to the expectations of significant protection by an equivalent of Safeguard Phase I is the inherrent vulnerability of a small ABM system to a large salvo of incoming missiles. Even the most optomistic proponents of Safeguard have argued that Phase I makes no sense alone: it cannot now be claimed to significantly strengthen our deterrent.

3. "Safeguard Phase I can be quickly thickened (by the addition of more interceptors) in case of a real threat to the U.S. deterrent should develop."

This claim distorts the real situation in three ways: by implying that our response to a threat to our deterrent should be a "thickening", that this can be done "quickly" and that such a threat can develop so fast that other countermeasures would be too slow.

It has been demonstrated that "thickening" of Phase I is much less cost-effective than developing a system dedicated exclusively to the protection of Minutemen. It is extremely unlikely that a threat to our deterrent will develop suddenly. If it should there are specific measures that could be taken. Much more likely, however, is a gradual erosion of some part. For this eventuality there is a wide spectrum of alternatives that can be developed and deployed on the same time scale as thickening could be accomplished. These include superhard silos, more Minutemen, ULMS and improved penetration capability for SAC.

III. Various ABM Defense Levels for Moscow

The Current Moscow System with No Improvements

1. At present the Moscow Dog Houses and the similar Chekhov installation still do not cover all of the US SLBM

threat corridors, so that the system remains vulnerable to penetration as well as to exhaustion.

2. Although the Dog House at 400 MHz is much more capable tha the lower frequency Hen House, it is not technically equivalent to the PAR or the MSR. It is vulnerable to nuclear effects, and although it is part of a defensive system, it is much softer than PAR and MSR. With no hand-over capability, with great physical vulnerability and susceptibility to refraction errors and to blackout it is not suitable for supporting SAM upgrading.

3. Despite the U.S. retargeting reaction to this system, its effects on the U. S. assured destruction capability can easily be accommodated by our present force or any fraction of it that might remain after agreed upon reductions.

4. Nevertheless, if the Moscow system is allowed to remain, there will be suspicion that more interceptors can be added quickly, that the system components can be clandestinely upgraded, and that the system can be internetted with SAMs to provide some ABM capability. This may result in our deciding to allocate a significantly larger fraction of our strategic force to counter Soviet defenses.

The Current Moscow System with no Limit on Upgrading

1. Permission to upgrade would probably lead to the erection of more radar faces covering all threat corridors and to the deployment of new Soviet radars and interceptors which match or exceed the capability of the MSR, the Spartan and the Sprint interceptors.

2. A substantially upgraded Moscow system may extend the area of defense coverage and provide a much better defense of the radars, thereby requiring a larger committment of our strategic force.

3. Expansion of the area covered and an upgrading of the technology of the Moscow system would provide a permanent rationale for suspicion of SAM upgrading such that the treaty itself would be undermined.

A Zero Level ABM for both Sides

1. Such an agreement would eliminate the fear of upgrading either of the local effectiveness of the Moscow system or of its providing their air defense with an ABM capability. As implied above this would remove the most persistant pressure for continuing a technological arms race within the framework of an agreement that keeps some ABM deployment.

2. A zero-level ABM agreement would eliminate all problems of determining equivalent capability or equivalent levels in two different NCA BMD systems and may therefore accelerate the negotiation of an agreement.

3. By reducing the targeting required for the Moscow area and in reaction to a possible SAM upgrade, such an agreement would minimize the size of our required retaliatory force. This could lead to a corresponding reduction in costs and would facilitate possible future agreements on force reductions on both sides.

4. A zero ABM agreement would lower U.S. defense costs by avoiding an investment in an NCA ABM and the additional costs of countering a Soviet NCA ABM. Moreover, we gain some advantage here in that a greater Soviet investment in deployment has already been made.

5. Such an agreement would confirm a mutual committment to a deterrent strategy. There would be a psychological gain by indicating in this way that the Soviet Union is abandoning any pretense that Moscow is defended and that deterrence was its accepted policy.

6. A zero level ABM agreement would reduce pressure on the Soviets to upgrade their air defense since a balanced view of defense would not justify costly measures aimed at tightening air defense in the absence of BMD.

7. Such an agreement would set a precedent for dismantling and suspending the development of large strategic systems. This would in turn win approval of the many nations who are looking for a Soviet- US action of some magnitude in responce to their committment in the Nuclear Non-proliferation Treaty and it would create a favorable atmosphere for further arms control agreements as well as a reasonable amount of time in which to work them out.

IV. Conclusions

On the basis of these considerations we conclude that the most beneficial agreement we can reach with the Soviets is one that prohibits all ABM systems including the current Moscow system. Such an agreement would be the least costly, the least complex, the most stable and probably the most quickly negotiated of all the alternatives we have considered.

If the Soviets will not agree to dismantling the present Moscow system, our recommendation would be to limit it to the components we already see (1 Dog House, Checkov and 64 launchers). With the Soviet ABM limited in this way, we conclude that the costs to us of proceeding with any BMD of our own considerably exceeds the benefits. Consequently, in our

view the U.S. should be willing to accept a freeze on further BMD deployment -- the Soviets keep what they have and we stay at zero. Perhaps this "concession" can find some compensation elsewhere in the negotiations.

If neither of these positions can be agreed upon and a limited regional deployment of ABM systems is seen to be mutually desirable we would recommend a NCA defense rather than a limited defense of Minutemen.

An agreement which geographically limits the BMD on both sides but includes very little or no limitation on improving or upgrading opens a Pandora's box of complications. It should be accepted only as a last resort.

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APPENDIX on the Problem of Early Warning

Irrespective of whether the NCA option or the Zero ABM option is adopted we have to face the basic asymmetries that exist between the Soviet Union and the U.S. in relation to radar early warning.

The U.S. has three BMEW stations and seven radars to provide early warning against SLBM's. The U.S. is planning to phase out two of the BMEW stations in about two years. It is the U.S. intention to depend on satellite early warning and over the horizon radar in the future.

In the Soviet Union we think that the Hen House system serves the multiple role of early warning, space track and R & D.

The present NSDM requires that those Hen House radars facing U.S. attack corridors be dismantled. There exists some difference among the agencies as to which installations are covered by this directive, but some certainly are.

We consider the requirement to dismantle these Hen House installations will be difficult to negotiate and difficult to justify. The Hen Houses are undefended and extremely vulnerable to both physical attack and blackout. We do not see how they can have any substantial capability in connection with the SAM upgrade problem. Requiring that the Hen Houses not be defended directly would give ample protection against a conceivable ABM role. Considering the other uses for which they may be needed in the Soviet Union we would recommend that they be permitted to remain in an undefended mode.

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