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ASSISTANT SECRETARY OF DEFENSE  
WASHINGTON, D. C. 20301

*By A. E. ...  
cont. See (b) (1)*

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**DOE REVIEWED 18-Oct-2007: NO OBJECTION TO DECLASSIFICATION**

SYSTEMS ANALYSIS

**OSD REVIEWED 21-Nov-2003: NO OBJECTION TO DECLASSIFICATION**

MEMORANDUM FOR SECRETARY OF DEFENSE

SUBJECT: Recycle of DFM on Strategic Offensive and Defensive Forces (U)

This year's comments to the DFM on Strategic Forces raised an unusually large number of issues on strategy, calculations, and posture planning, in addition to the reclaims of particular tentative force decisions.

A. On Deterrence:

The Air Force argues that:

1. Deterrence depends on the difference between U.S. and Soviet losses in an exchange, not just on Soviet losses. The difference between U.S. and Soviet deaths is important. The measure of deterrence could also depend on the surviving military forces on both sides after an exchange, not just on civilian losses.

2. We should pay more attention to deterring strategic nuclear attacks against NATO Europe, in cases where the U.S. is not attacked simultaneously. A capability to attack the Soviet IR/MRBM sites is called for, while we continue to deter attacks against COMUS. Presumably, a Europe-based strike force is also called for, but Dr. Brown does not raise this suggestion.

3. Active defenses improve our deterrent by making Soviet targeting and tactics more difficult, by reducing the difference between U.S. and Soviet fatalities (see point 1 above) and by introducing a kind of symmetry: for instance, if the USSR over-estimates its own defense capability, they would probably over-estimate U.S. defense performance also, thus balancing their likelihood to pre-empt.

4. Strong U.S. Damage Limiting programs would protect our Assured Destruction capability and could forestall, not fuel, an arms race. By making the Soviets work hard for an Assured Destruction capability, they could not afford to strive for a Damage Limiting capability simultaneously.

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5. Deterrence depends on performance under war-fighting, SIOP-like scenarios, not just on static exchange models. In fact, Dr. Brown suggests that our losses must be no greater than Soviet losses under all scenarios to have a good deterrent.

6. Without a U.S. Damage Limiting program and with a fixed standard of Assured Destruction, U.S. programs would be driven by Soviet initiatives and could fall a phase behind. The JCS also raise points 4 and 5, and point 1 is implicit in many of their comments. One valid point not raised in the Service comments is that our National command and control system is vulnerable. I believe that the Soviets' best chance to avoid retaliation would come from attacking the President, his chain of command and his communication to the major commanders responsible for executing the SIOP; our analyses show that attacks on our strategic forces are much less likely to work; furthermore, almost all of our effort goes to protecting our forces.

#### Discussion

The arguments on deterrence fall into two sets:

That the deterrent is inadequate against very large Soviet attacks if they are severely enough pressed, or

That the deterrent is inadequate against a limited Soviet nuclear attack, such as a strategic attack limited to Western Europe, or an attack against U.S. military forces that spared U.S. cities.

I find unconvincing the arguments about the inadequacy of our deterrent to very large attacks. First, the Soviets have a great deal to worry about for which we take little credit in our Assured Destruction calculations: our large bomber force; launch-on-warning tactics; inefficiencies in their targeting due to imperfect intelligence, command and control, or timing; U.S. theater strike forces; Soviet fatalities due to long-term fall-out, epidemics, or secondary effects (e.g., starvation) because of bottle-necks in their economy. Second, differential fatalities is a poor criterion for deterrence. Assured Destruction is the lower end of a range of fatalities -- 20% fatalities (40 million) in Assured Destruction corresponds to a range of 40-100 million fatalities in likely cases. If we can kill 40-100 million Russians (40 million is the best they could hope for), why would they be tempted to launch a massive strike against the U.S. that could kill 150 million Americans? (Even if they could replace their industrial capacity by invading Western Europe.) Third, there is no reason for the Soviets to believe the U.S. would retaliate to a strike on our cities by attacking Soviet military targets at the expense of our Assured Destruction capability. If they hit our cities in a massive strike, they would have to expect a vengeful U.S. strike back to kill as many Russians as possible. Perhaps the SIOP should have two different options against Soviet cities:

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- a. Only enough counter-city strikes withheld for an intrawar deterrent if they do not hit our cities, and
- b. Massive punitive strikes if they do.

However, I do feel that better protection of our National Command and Control system (our "Assured Execution" capability) is an important part of improving our Assured Destruction capability. Moving the Spartan battery of the Chinese oriented ABM from New York to Washington would improve our deterrent by reducing the chance of a Soviet attack against the command and control system needed to launch our retaliatory strike. I recommend that the battery be shifted to Washington.

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The arguments on our inability to deter small attacks are more disturbing. The impotence of an Assured Destruction capability in deterring conventional wars, etc., is already well recognized, and the gaps in our over-all posture from the days of "massive retaliation" have largely been filled with conventional forces and tactical nuclear forces. But a sizable theoretical gap still remains between tactical nuclear weapons for battlefield use, and strategic forces used in an Assured Destruction task. The main example raised is a large Soviet strike against military targets in Western Europe, followed by an invasion. The question is, of course, what can the U.S. do to deter such an attack? The Air Force and JCS would argue that survivable, additional Europe-based strike forces, capable of reaching the USSR, would be needed to maintain a credible deterrent to this sort of attack. (Unfortunately, additional, non-survivable weapons such as QRA aircraft probably invite, rather than deter, this type of strike.) I think we have enough strike forces in Western Europe to deter such a strike, when backed up by the external forces (SAC and Polaris) to deter a really massive strike. But if we are to continue to talk of external forces in deterring theater war, we had better obtain the operational plans to use them against the Soviet threat to Europe, without automatically triggering the strategic U.S.-USSR exchange that we all recognize as mutual suicide. Thus, I believe our main requirement for keeping credible our guarantees to protect our allies is a better operational plan, not additional forces bought and justified for this task.

A secondary question is our deterrent of a large strike against our strategic military forces, but not cities, in the U.S. In cold logic a U.S. response that strikes their cities is not rational (and hence credible), especially when we announce that our action would inevitably lead to a Soviet attack on our cities.

We have a very strong incentive for better operational planning to increase our own counterforce effectiveness, in order to keep a confident deterrent of a Soviet attack constrained to our military forces.



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In answer to the specific points on deterrence:

1. I have already explained why I do not think the difference in U.S. and Soviets deaths is very relevant to the measurement of our deterrent. However, a favorable surviving balance of military forces on both sides, in an exchange that spares cities, might serve to deter such an exchange. We should improve our operational plans (SIOP) to gain as favorable counterforce results as we can.

2. I agree that we should pay more attention to deterring attacks on Western Europe, but improved operational planning would allow us to obtain a much better deterrent to these attacks than we now have, without additional forces.

3. Defenses add to deterrence mostly by protecting our strategic forces. Arguing that Soviet uncertainties enhance our deterrent is counter to the idea of Assured Destruction; we want them to be sure that they cannot destroy our forces. The Air Force also argues that defenses enhance our deterrent by reducing U.S. fatalities; if you reject the difference between Soviet and U.S. fatalities as a measure of deterrence (point 1 above), then you reject this point also. There is some merit in the Air Force argument that defenses on both sides introduce a kind of symmetry: if the Soviets over-estimate their own defense effectiveness they will also over-estimate ours. But since I think the Soviets might be tempted to go to war to strike our military forces, but not just to strike our cities, only active defense of our military forces is needed to acquire this kind of symmetry. Finally, defense against an accidental attack forecloses another way that war might start. In sum, active defenses might improve our deterrent somewhat, but no heavier a defense than the present light ABM deployment is needed to attain these advantages.

4. Accuracy in U.S. offensive missile programs indirectly helps our Assured Destruction capability by greatly increasing the cost to the Soviets of buying survivable offensive missiles, and thus reducing their total missile payload. But I do not see much merit in practice to the argument that strong defenses divert Soviet resources from Damage Limiting programs to their own Assured Destruction problems. In theory, the Soviet response to a heavy U.S. defensive program, coupled with our strong offensive missile forces, should be to buy a small number of big, protected or mobile missiles, with penetration aids, small RVs and many other measures that give them a good penetration capability but need not add a bonus first strike capability. In fact, however, they would feel forced to continue production of fixed missiles that would give them a large first strike force, and furthermore their response to a large U.S. ABM would very likely, although illogically, include a large Soviet ABM. This would greatly complicate our Assured Destruction task.

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5. Present operational plans (such as SIOP) should not form the basis for analyses of future requirements. Operational plans are presently not reviewed in OSD, and they provide for missions that, although desirable, may not be worth spending large sums on. This is especially true in strategic forces, where the plan is basically for limiting damage against a well-defined threat, whereas forces are bought to protect our deterrent against a potential threat far in the future. However, it seems likely that the SIOP will continue to be quoted to us in the future in support of requests for additional forces. In this case I feel we must get into the SIOP as the paper at Tab B discusses, not only to understand what is there but to carry out improvements so that past inefficiencies not propagate into future requirements. I recommend you sign Tab B.

Concerning the suggestion that for a good deterrent our losses must be no greater than Soviet losses under all scenarios, this would lead to an absolutely open-ended requirement for strategic forces and would eradicate the distinction between a deterrent and a complete war-fighting capability.

6. It is inaccurate to imply that U.S. programs are driven by Soviet initiatives while the Soviets have a free hand. As your San Francisco speech illustrated, Soviet programs are also very strongly driven by what we do.

B. Damage Limiting:

1. The JCS believe we should buy Damage Limiting programs designed to keep us superior in any war, should deterrence fail. Their strongest objection to the strategy of the DPM is the lack of a Damage Limiting program against the Soviet Union, rather than to the inadequacy of our forces for deterrence. Implicitly the JCS seem to think that nuclear war is more likely than we think.

However, I see no reason to change our position on the infeasibility of Damage Limiting against the USSR, as a basis for planning our forces.

2. Dr. Brown argues that there is room for the Soviets to keep an adequate deterrent, and yet for the U.S. to reduce damage significantly. The Army, Air Force, and JCS all agree that the Soviets would try to regain their deterrent if the U.S. deployed heavy defenses, but they need not succeed, and in any event would not return all the way to their present, very high level of Assured Destruction.

I agree that the Soviets would most likely not completely regain the second strike capability they have today if the U.S. started a major Damage Limiting program. Unfortunately even a partial response to Nike-X would take away most of its benefit if the Soviets struck first, as shown in the following table.



U.S. Fatalities (1977)  
(In Millions)

	<u>U.S. Strikes First</u>	<u>USSR Strikes First</u>
No U.S. ABM Posture A	100	120
Limited Soviet Response	60	110
Full Soviet Response	100	120

The main point of this table is that even if Posture A cut U.S. deaths in half if we pre-empted, its effects if the Soviets went first would be negligible. Since we worry mostly about a Soviet first strike, even a small Soviet response would negate Posture A in the more important case.

3. The JCS and the Navy argue that forces procured for Assured Destruction should be evaluated in war-fighting/war-terminating scenarios. But they are not specific in suggesting how to do this.

We do try to evaluate U.S. strategic forces in war-fighting scenarios, as shown in Table 13 of the Strategic Force and Effectiveness Tables, and pages 17-19 of the DPM. We have repeatedly told the Joint Staff that we would be happy to include additional tables showing "more realistic" scenarios, but they have been unable to produce them. Similarly, we would use war-terminating scenarios if we or they could design them.

4. The Army <sup>argues</sup> argues that we can afford to reduce air defenses somewhat if we do not choose a Damage Limiting objective against the USSR: We have no disagreement over Hercules.

You deleted the following paragraph on air defense from the IDPM. Without this paragraph no rationale is given for the IDPM air defense recommendations. Unless you decide to buy the F-12, I recommend you reinstate this paragraph:

"Continental Air Defense

An improved air defense system consisting of F-12s with AWACS is not justified with a light ABM. In a Soviet first strike we would still suffer over 100 million fatalities from their missiles no matter what we do about air defense. However, a modest air defense system (one which is less costly than the present system and significantly less costly than the F-12) is justified to patrol our air space, to discourage possible Nth country threats and to continue to discourage Soviet bomber aspirations. We can achieve these objectives

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by gradually phasing down the present system and by continuing research and development of AWACS. If the AWACS program is successful we may want to deploy it with a limited number of modified F-106s. Such a system could also accomplish the above objectives. It could also be part of a mobile air defense system which could be used in CONUS and overseas. It could be used to defend Minuteman missiles from bomber attack if we decide to withhold some of these missiles for more than three hours after the start of a war."

Reinstate \_\_\_\_\_

Leave out \_\_\_\_\_

*Handwritten notes:*  
} based on Defense Section  
with current capabilities  
2. ... [unclear] ...

C. Calculations:

1. All the reclusas note an apparent drop in the stated requirements for Assured Destruction. The 1964 DPM did not define the required level of Assured Destruction, but did discuss alternative forces for attacking 150 cities, or 25% of the population. The 1965 DPM said that 30% Soviet fatalities would be a completely adequate deterrent, but did not say that this was the minimum required. Last year's DPM said that 20-30% Assured Destruction fatalities will deter a deliberate Soviet attack. This was rounded to "one-fifth to one-fourth of the Soviet population" in the posture statement, and then to 20-25% in this year's DPM. But the drop in Assured Destruction requirements is more apparent than real, since we have in fact been sensitive to missile-only Assured Destruction of 20% for years.

2. The Navy would not include bombers in Assured Destruction calculations at all, but I think this conservatism is too extreme. We take steps to keep missile-only Assured Destruction fatalities at or above 20%, and would not count on bombers as a solution to a long-term decline in our capability. However, if the missile-only Assured Destruction dips below 20% for one or two years, we do rely on the bombers to smooth out the dip until a missile solution becomes available.

3. The Air Force and the JCS would have calculations showing sensitivities to a variety of factors: pin-down tactics, fractional orbit ballistic systems (FOBS), failure of penetration aids, other technical risks.

Although we are careful in our arguments to cover areas of technical risk, we should be more explicit in our calculations on the effects of various types of technical failures. We are preparing a table of sensitivities to various technical failures for the Strategic Force and Effectiveness tables.

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4. Our Damage Limiting calculations assume that bombers are withheld for a significant part of the Assured Destruction task, freeing many missiles for attacking military targets. The Air Force notes that present operating procedures leave the bombers too vulnerable to be safely withheld, and therefore we should buy the AMSA which is easier to withhold. Instead, the Air Force should follow-up with the steps needed to give the present bombers an enduring survival capability. Bombers are presently kept at about 40 home bases, at a very high level of readiness, to be flushed and go to target on 15 minutes of warning of an ICBM attack. Against FOBS, SLIMs, or other measures designed to deny warning, a concept of operations calling for widespread dispersal and cycling of aircraft to unattacked bases is an alternative to the better warning systems and shorter warning times that the Air Force proposes. Widely dispersed bomber operation in a crisis is particularly well-suited to the nationwide area defense of the China-oriented ABM. The enclosed paper (Tab B) discusses bomber operations more fully.

5. All the comments missed the difference between fatalities in Assured Destruction scenarios, where we are very conservative, and fatalities on both sides in war-fighting scenarios, where we use more likely cases.

6. The JCS comments continue to concentrate very much on inputs: for instance, they measure offensive forces in terms of targets covered (not destroyed), or in relation to Soviet offensive forces, not in terms of damage potential or U.S. damage avoided; they measure defenses in terms of aircraft intercepted or RVs destroyed, not in terms of fatalities incurred with and without defenses.

7. The Army notes that they and my office now get similar results in similar calculations, thanks to the extensive work that we did last winter in getting their concurrence on the Strategic Force and Effectiveness Tables.

D. On Posture Planning:

1. JCS and Air Force both think we may be cutting lead times too close or relying too much on intelligence in our policy of buying options rather than extra forces against unexpected threats. However, I believe the value of buying options and hedging our forces for Assured Destruction has been well demonstrated in the last two years.

2. The JCS and Air Force take too literally our great interest in Assured Destruction. Where we use the concept only to test the adequacy of the force, they seem to be getting a message that we are interested

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in no improvements or operational capabilities for other than second strike attacks on urban targets. This is in spite of the decision to improve Poseidon accuracy by buying Startracker. Dr. Brown has several times stated that we should not immediately attack cities should deterrence fail, as if he thinks OSD would attack cities immediately.

It is understandable from the tone of the DPM that the JCS and the Air Force misunderstand our interest in accurate systems and in a graduated nuclear attack policy -- rather than just attacking Soviet cities -- in any war short of a general strategic attack on our cities. This problem would be solved by some mention in the DPM of what we would do if deterrence failed, followed up by the operations memorandum (Tab B).

The following two paragraphs, which you deleted from the IDPM, go far towards meeting the demand for guidance on what we do if deterrence fails, without buying very heavy defenses.

"Another objective of our strategic forces is to reduce damage to the U.S. and its Allies if a war does begin. We can do this most effectively by deterring attacks on our cities. For example, by not attacking Soviet cities if they avoid ours, we can reduce Soviet incentives for attacking U.S. cities.

We might try to take away the USSR's ability to destroy our cities. Adopting this goal would require major spending, about \$40 billion over a ten-year period for defensive systems such as a heavy anti-ballistic missile (ABM) system and extensive anti-bomber defense, in addition to the large costs of our offensive forces. Even this much money would be wasted when the Soviets reacted to the defensive systems."

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The following paragraph, part of which you deleted from the IDPM, shows some interest in a war-fighting capability within the framework of the force sized for Assured Destruction:

"If we could be sure that Soviet forces would follow the low range of the NIE -- both in quality and numbers -- we should start considering smaller strategic forces. Since we have more than enough forces for Assured Destruction against the expected range of threats, we should take steps to improve the effectiveness of that part of the force available to attack Soviet military targets. My recommendation on an improved guidance system for Poseidon is such a step."

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F. On the Threat:

All the comments noted that this year's National Intelligence Estimates of Soviet ICBMs and SLBMs will be considerably higher than last year's estimates. Tab A summarizes the estimates and discusses the evidence. In any event, the USSR is almost certain to have more than 1,000 ICBMs by 1972, and could pass this number by 1970.

The change in the threat does not change our major posture recommendations so long as we are driven primarily by Assured Destruction considerations, since these are in turn driven by the Greater-Than-Expected Threat which is much stronger than any NIE. The increased threat makes Damage Limiting and a counterforce policy appear yet less feasible.

I would handle changing intelligence estimates by:

1. Bringing the intelligence narrative (page 8 of the IDPM) up to date.

2. In calculations involving NIE forces, use the current agreed NIE numbers (as of March 13, 1966) but indicate in the discussion the sensitivity of the results to the changing threat. The new NIE will not lead to different posture recommendations.

3. When the new agreed estimates are available (mid-November), issue a new version of the DPM, redoing the calculations on the newest estimates.

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This does still leave the question of whether numbers of launchers are important enough for political reasons to push us into buying more ICBMs. Although numbers of weapons provide a more meaningful measure of U.S.-USSR capabilities than does the number of ICBM launchers, the number of weapons will not become a commonly accepted measure because it is impossible to observe and verify. I believe the numbers of launchers will retain an intuitive importance, if only because it is so easy to count.

If you feel that the U.S. should not stay at 1,000 ICBMs while the USSR deploys more than this number, the question arises about what missile we should be prepared to deploy.



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A number of studies over the past year have addressed the question: If we need additional land-based missile payload, what should the missile look like and how should it be based? The major study on this question was STRAT-X. STRAT-X assumed that we would develop a new Advanced ICBM with 7,500 lb. payload and studied its basing and concluded that if a significant increase in land-based payload is needed the missiles should be defended and deployed with one missile for four 3,000 psi silos. The remaining three silos are filled with dummy missiles.

One Advanced ICBM and three dummy missiles cost at least as much as four Minuteman IIIs and have the same payload, because of the \$2.5 billion R&D needed to develop the Advanced ICBM. It is cheaper to deploy additional Minuteman IIIs in 3,000 psi silos than to develop and deploy an Advanced ICBM and this deployment would have the political value of providing many more missiles. Minuteman III in 3,000 psi silos cost about \$14 million per silo, or 10% more than Minuteman III in the present 300 psi silo.

F. Summary of Important Points Raised in the Reclamations:

1. Because the calculations of Assured Destruction are so theoretical and the DPM is so important a vehicle to such a large audience, concepts of Damage Limiting and graduated nuclear response are not receiving enough attention in detailed weapon system design or in the preparation of war plans.

2. The NATO-approved concept of flexible response should be extended to provide a credible nuclear deterrent to nuclear wars that fall short of all-out U.S.-Soviet attacks on each other's cities. This involves improved operational plans rather than additional forces.

3. Novel threats and sensitivities to technical risks should be treated more explicitly in the Strategic Force and Effectiveness Tables, and in next year's DPM.

4. Bombers cannot now be withheld to threaten cities in Damage Limiting calculations and scenarios.

5. By 1972 the Soviets will most likely have more ICBMs than we have programmed. We should re-examine whether we would accept a situation where we have a good Assured Destruction capability, but where we have only 1,000 ICBMs while the USSR has 1,500 or 2,000.

G. Reclamations of Force Decisions:

The specific force issues raised in the reclamations are presented in the enclosure for your decision. Except where noted specifically, DDR&E concurs with my recommended alternative. I will prepare a red/green version of the DPM based on your decisions.



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