

Nuclear-tipped Foolishness

By Michael Kraig and Michael Roston

On April 11, 2002, the *Washington Post* publicized the Defense Science Board's study of integrating nuclear-tipped interceptors into America's planned national missile defense (NMD). Initial Bush administration reviews of missile defense technology discounted the possibility of using such a system. However, the administration may be concerned that other missile defense proposals, employing "kinetic hit-to-kill vehicles" that strike a target head-on, cannot guarantee successful interception. Some analysts have suggested that this form of interception is as difficult as "hitting a baseball with a golf ball." Beyond guaranteeing a successful interception, some NMD planners also hope that nuclear explosions in space would guarantee the destruction of biological or chemical agents in ballistic missile payloads.

The Defense Department under Secretary Donald Rumsfeld is not the first to consider the use of a nuclear warhead-based missile defense system. Nuclear-tipped ballistic missile interceptors created a great deal of controversy in previous decades. One system, known as Sentinel, was actually deployed during the 1970s to defend the Midwest's nuclear silos from a preemptive strike. The military considered deploying the Sentinel system nationwide. The result was a strong push by physicists that succeeded in convincing the military that the risks of deploying such a system far outweighed the protection it provided.

The arguments against nuclear-tipped interceptors have salience to this day, and should continue to be heeded.

First, nuclear-tipped kill vehicles would most likely intercept an incoming missile in low earth orbit (LEO). At this height, it is still possible for radiation produced by a nuclear detonation to fall back to earth. If this intercept were to occur over American soil, the missile

defense system would create a serious risk of the homeland being exposed to unnaturally high amounts of dangerous radiation. It is precisely this concern that inspired Representatives John Spratt of South Carolina and Tom Allen of Maine to mandate a study by the National Academy of Sciences of the effects of such an incident.

Second, the damage done to most commercial and military satellite systems by even one nuclear detonation in low earth orbit would be comparable to the "Pearl Harbor in Space" scenario ironically depicted by many conservatives as a justification for U.S. weaponization of space. On January 11, 2001, a special commission on threats to U.S. space systems led by Rumsfeld concluded that U.S. satellites were vulnerable to both conventional and nuclear attacks conducted by "rogue states," who presumably would have little to lose in a conflict with the United States. But isn't it possible that the use of a nuclear-tipped interceptor in an NMD system deployed by the U.S. would have essentially the same destructive effects as a rogue attack?

Even within the Defense Department, there have been studies showing that a nuclear detonation in space, whatever the source, is a shock our entire planet cannot healthily absorb. An April 2001 study by the Defense Threat Reduction Agency entitled "High Altitude Nuclear Detonation against Low Earth Orbit Satellites" concluded that a single low-yield nuclear burst in space could disable every commercial and government satellite in low earth orbit in a matter of weeks. Replacement of damaged satellites at current launch rates would be extraordinarily difficult, expensive, and time-consuming, while higher background radiation levels would continue to degrade any new systems put in orbit for months afterward.

Most commercial communications satellites are in low earth orbit. In their role as conduits for rapid information exchange, they form the backbone of the global economy, and their destruction would chaotically disrupt international markets. Furthermore, the diplomatic consequences of destroying all other countries' LEO satellites in such a strike (including those of our allies) would be almost unimaginable. And the effects would go well beyond economic and diplomatic. Weather prediction and monitoring satellites would also be badly degraded, undermining everything from U.S. military operations to worldwide shipping and transportation to disaster prevention. In addition, crucial military imaging systems such as the Lacrosse, KH-11, and KH-12 photo-reconnaissance satellites would eventually be disabled as well.

The U.S. uses these satellites for target identification for future air

strikes, tactical wartime intelligence, and post-bombing damage assessment—tasks that were essential to military success in Iraq, Kosovo, and Afghanistan. The loss of such assets would undermine the use of precision air strikes during wartime to limit U.S. casualties.

In short, the accumulated economic shocks and human casualties caused directly and indirectly by the loss of LEO satellites would be very high and hard to calculate accurately. It is exactly these extreme vulnerabilities that have led many U.S. conservatives to warn about a future Pearl Harbor in Space. But in this case, it would be the U.S. itself that would destroy its own assets—not international rogues.

Unfortunately, in its rush to deploy a workable NMD system, the administration appears to be studying a form of treatment that will cure the disease but kill the patient. In seeking to prevent one ballistic missile from strik-

ing an American target, a nuclear kill vehicle could do serious harm to the very people it seeks to protect. Members of Congress are right to raise concerns about the implications of this system. One hopes they will convince the Pentagon's Defense Science Board to fully consider these costs by going beyond narrow technical considerations and assessing the overall effect of a nuclear-tipped interceptor on U.S. national security.

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