

Statement to Press Conference
on *Ensuring America's Space Security*
Report of the Federation of American Scientists Panel on Weapons in Space,
Leonard Weiss, Chairman
Rayburn Building 2325, October 7 2004.
Contact: Deborah Shapley FAS 202.454.4680 dshapley@fas.org www.fas.org

Good morning.

My name is Leonard Weiss and I had the honor of chairing the FAS Advisory Committee on Weaponization of Space.

The Committee, which consists of 11 people with significant technical and policy experience in space-related technology, operated for about a year before producing the report which we are releasing this morning.

The report is the product of many internal deliberations that were informed by a number of special technical studies and presentations by outside experts.

The bottom line of the report is that, at least for the next five years, there is no legitimate national security justification for the United States to put weapons in space, that is, in orbit around the earth.

In coming to this conclusion, the Committee examined carefully the arguments put forward by proponents of space weapons, which claimed that such weapons were needed to address specific vulnerabilities of U.S. space systems and counter threats from other countries, but in every case we identified alternative ways of mitigating vulnerabilities and addressing threats that, in our view, are superior to putting weapons in space. I will talk about these alternatives in a moment.

First, I want to say a few words as to the motivation for the study.

On January 11, 2001, the Commission to Assess United States National Security Space Management and Organization, otherwise known as the second Rumsfeld Commission issued a report that said there were growing threats to U.S. space assets from the activities of "rogue states" and sub national groups; and that our enemies could conceivably develop secret capabilities that could surprise the U.S. with a "space Pearl Harbor" attack. The Rumsfeld Commission then recommended that the President should be given the "option" of putting weapons in space to defend U.S. assets.

The following year, in 2002, the U.S. withdrew from the ABM Treaty, thereby allowing the development and testing of weapons in space for the purpose of building a Ballistic Missile Defense System. But any such system for knocking down ballistic missiles also

has the capability of knocking out satellites, that is, serving also as an ASAT system.

This apparent push toward putting weapons in space caused the FAS to create the current Advisory Committee, for the purpose of examining the claims of vulnerability of U.S. space assets, and whether putting weapons in space is a good way of dealing with that problem.

Now, despite the fact that none of the fears of the Rumsfeld Commission have materialized, the push for putting weapons in space has grown significantly. The Center for Defense Information has posted an analysis of an Air Force doctrinal document that projects the weaponization of space for the purpose of execution of offensive and defensive operations against space systems and satellites.

The FAS Advisory Committee did not begin its work with any apriori judgment about weapons in space. We did begin our work with a unanimous assumption that protecting U.S. space assets was critically important. Our civilian and military infrastructure, including command, control, communications, surveillance, reconnaissance, and intelligence, and our economic life generally, are now highly dependent on our space assets.

The question is: Are weapons in space the best way of protecting those assets, recognizing that weaponizing space can bring unintended consequences, including the acceleration of weaponization by others.

The proponents of weaponization have made it clear that protection of our assets is not the only reason they want weapons in space. They also want those weapons in order to add to U.S. military dominance via the ability to attack, from another platform, the space assets of others, and in so doing, to add to our geopolitical clout.

Now there is no data subject to scientific analysis that can determine whether putting weapons in space would actually result in a significant addition to the political benefits that may have accrued to the United States from its dominant military posture. Accordingly, the Advisory Committee did not take a position on whether weaponization in space has any geopolitical value for the United States beyond the ability to protect some very important space assets. In particular, we did not examine independently the question of space-based ballistic missile defense except to review the study of boost-phase National Missile Defense done by the American Physical Society, which concluded that there were serious problems concerning feasibility.

But on the question of protection of our space assets, one can do a technical analysis of the threats to and vulnerabilities of those assets, examine whether cost-effective alternatives to using space weapons to mitigate them exist, and thereby determine whether space weapons are needed for that purpose.

And that is precisely what the Advisory Committee has done in this report.

First, we listed our space assets and divided them into two classes: Those for which protection by space weapons are relevant; and those for which space weapons are irrelevant. For example, space weapons cannot counter an adversary's ability to jam GPS or satellite links. But there are other ways of mitigating against that threat. Satellites can be made more resistant to jamming, one can establish international norms with sanctions against jamming, and ultimately one has the ability to destroy jamming stations with conventional military attack.

Space weapons are also irrelevant to the problem of space debris that can threaten any satellite or spacecraft. Even a paint chip in orbit can cause problems. And, in fact, weapons in space can add to the problem if it results in an orbital fight; if a GPS satellite in geo-synchronous orbit is destroyed, it can create a debris problem for the remaining satellites. Our conclusion is that the best way to deal with orbital debris is to reach international agreement on best practices to minimize debris, with sanctions for violators of the agreement.

But there are vulnerabilities to our space assets whose mitigation might be addressed by weapons in space, and we took a close look at those.

1. ASATs: Our satellites could be destroyed by ground-based kinetic or directed energy weapons. Are space weapons the best answer to this potential threat? We don't think so. There are a host of alternatives that are less expensive and more reliable: (a) an international agreement to ban testing and deployment of ASATs; (b) conventional military attack on ASAT bases; (c) for protection against directed energy attack, protective circuits, detection sensors, electro-optical sensors.

2. HANE: A High Altitude Nuclear Explosion could create an artificial radiation belt and/or an EMP (electro-magnetic pulse) that could harm the electrical circuitry of satellites. Although there is no possibility within the next five years of our being able to track and destroy a SCUD-type missile in flight to produce HANE, we can protect our satellites from its radiation and EMP effects by the hardening of critical circuits. According to the Defense Threat Reduction Agency (DTRA), this represents only a 2-3% additional cost for the satellite.

3. Small satellites used as ASATs or "space mines": This is arguably the most difficult potential threat to defend against. There is no way of determining whether an orbiting satellite contains a weapon, or is intended to destroy other satellites by collision. Putting our own mines or other weapons in space is likely to accelerate the development of such instruments by others, and once they're in orbit, our assets would be in very great jeopardy. We should recognize that, just as with nuclear weapons, even inferior space weapons to those of the U.S. can have a devastating effect on our security and economic life.

One way of dealing with this threat is by negotiating an international agreement on "rules of the road" for satellites, with penalties for violators. For example, one might establish "keep out" zones around satellites so that maneuvering a satellite within the zone, or

staying there instead of transiting through it, would be considered a hostile act. There is work ongoing on such ideas, including within the Canadian Ministry of External Affairs.

Another approach would be to begin consideration of the feasibility of establishing an international agency that would verify the absence of weapons aboard a satellite ready for launch. Exactly how and whether this can be done is a research problem worthy of support. A possible model for such an agency might be the International Atomic Energy Agency (IAEA) that verifies whether civilian nuclear materials in a member country are accounted for and are being used for peaceful purposes.

While no potential adversary of the United States will be in a position to launch space mines for at least five to ten years from now, we should work to enhance the maneuverability of critical satellites and improve our tracking, surveillance, and intelligence capabilities to prevent any unpleasant surprises. Prevention, in this case, is a better avenue than cure. But in the end, if others move toward such deployment, the threat to the United States might leave no alternative except the use of weapons.

Because of the inevitable uncertainties about the future, including the effects of rapidly changing technology, the Panel could not say that there will always be better alternatives to putting weapons in space in order to protect U.S. security. In particular, if others begin preparing to put weapons in space, the U.S. should certainly have the option of following. And that's why the Panel has recommended that R&D on space weapons continue at an "appropriate" level so that the option remains available. By "appropriate," we mean a level that does not create an unstoppable momentum toward deployment regardless of the need.

But we are confident that there is no need to put weapons in space for at least the next five years, and we believe that the exercise we went through in producing this report should be repeated at five year intervals.

It is our hope that, as the benefits of space continue to burgeon and spread around the world, they will engender a realization that the production of threats from space is not in the interest of any nation. The space policies of all space-faring nations should proceed from that notion.

Leonard Weiss, Chair, for the FAS Panel on Weapons in Space

October 7, 2004

Contact Deborah Shapley FAS at 202.454.4680 or dshapley@fas.org www.fas.org