SJR

30

FISCAL NOTE

STATE OF ALASKA **BILL NO.** SSSJR 30
1997 LEGISLATIVE SESSION

Revision Date 5/2/97 Dept. Affected
Title "Defense of Alaska from Nuclear Attack" BRU
Component
Sponsor Senate Judiciary Committee by Request
Requester Senator Robin Taylor Component Serial No.

Expenditures/Revenues (Thousands of Dollars)

OPERATING EXPENDITURES	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGE IN REVENUES [ ]						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
1091 Designated Program Receipts						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY97) cost: 0.0

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

Prepared by Laura Chase Laura D. Chase Phone 465-3717
Division Senate Judiciary Committee Date 5/2/97
Approved by Senator Robin Taylor Robin L. Taylor Date 5/2/97
Agency Chairman, Senate Judiciary Committee

FISCAL NOTE(S)

SENATE COMMITTEE REPORT
First Committee of Referral

DATE: 5/2/97

FURTHER:

Date of 5-Day Notice: 4/30/97
(in accordance with Uniform Rule 23)

DATE TURNED IN TO OFFICE: 5/2/97

Judiciary Committee considered

SPONSOR SUBSTITUTE FOR SJR 30

Relating to the defense of Alaska from offensive nuclear attack.

and recommends:

[ ] be **replaced** with _____ CS _____ (_____)

[ ] adopt **previous** _____ CS _____ (_____)

[ ] attached amendment(s)

[ ] adopt Letter of Intent by _____ Committee

[ ] further referral to the _____ Committee

Senate Bill:
[ ] same title
[ ] new title

House Bill:
[ ] same title
[ ] technical title
[ ] new: SCR#_____

SIGNING DO PASS	*DP*	*OTHER RECOMMENDATIONS*	*NR*	*DNP*	*AM*
Mike Miller	✓	Helen K Parnell	✓		
		[illegible]	✓		
CHAIR: [illegible]		*CHAIR:*			

NEW FISCAL NOTE(S):

Department	Date	Zero	Fiscal
S. JUDICIARY	5/2/97	Ø	

PREVIOUS FISCAL NOTE(S):*

Department	Date	Zero	Fiscal

[ ] **APPROPRIATION -- no fiscal note**

***include fiscal notes accompanying Governor's bill**

SENATE COMMITTEE REPORT
First Committee of Referral

DATE: 4/29/97

FURTHER:

Date of 5-Day Notice:_____
(in accordance with Uniform Rule 23)

DATE TURNED
IN TO OFFICE: _____

Judiciary Committee considered SENATE JOINT RESOLUTION NO. 30

Relating to the defense of Alaska from offensive nuclear attack.

and recommends:

[ ] be **replaced** with _____ CS _____ (_____)

[ ] adopt **previous** _____ CS _____ (_____)

[ ] attached amendment(s)

[ ] adopt Letter of Intent by _____ Committee

[ ] further referral to the _____ Committee

Senate Bill:
[ ] same title
[ ] new title

House Bill:
[ ] same title
[ ] technical title
[ ] new: SCR#_____

SIGNING DO PASS	*DP*	*OTHER RECOMMENDATIONS*	*NR*	*DNP*	*AM*
CHAIR:		*CHAIR:*			

NEW FISCAL NOTE(S):

Department	Date	Zero	Fiscal

PREVIOUS FISCAL NOTE(S):*

Department	Date	Zero	Fiscal

[ ] APPROPRIATION -- no fiscal note

***include fiscal notes accompanying Governor's bill**

ALASKA STATE LEGISLATURE

Sen. Robin Taylor, Chair
Sen. Drue Pearce, Vice Chair
Sen. Mike Miller
Sen. Sean Parnell
Sen. Johnny Ellis

State Capitol
Juneau, AK 99801-1182
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Senate Judiciary Committee

SPONSOR STATEMENT
for
SS SJR 30

The main purpose of this resolution is to ask the President and Congress of the United States to send an appropriate committee to Alaska for a field hearing on the issue of building a ballistic missile defense and to register our discontent that pending U.S. defense policies may be making Alaska vulnerable as a target for a nation or terrorist group that has ballistic missiles.

Washington's current debate on the ballistic missile defense issue has special significance to Alaska for several reasons:

- Those who believe the United States should not build a ballistic missile system may be relying on a flawed 1996 National Intelligence Estimate (N.I.E.). The N.I.E. focused on the continental United States' vulnerability to a missile attack over the next 15 years, omitting Alaska and Hawaii. Had Alaska and Hawaii been included in the estimate (N.I.E.), given the fact that we are closer to potential launch sites on the Eurasian continent, the conclusions of the National Intelligence Estimate (that stated the U.S. does not face a near term major threat) would have been much different.

- During the Nixon administration, the United States and the Soviet Union signed the ABM treaty that would allow the U.S. to deploy a system that would leave Alaska subject to what the federal government calls a "fragile" defense. If the target is Alaska, the radar allowed under the treaty would not be able to accurately direct an interceptor missile because Alaska's distance from the proposed launch site in Grand Forks, North Dakota, dramatically reduces the available time for an intercept to reach inbound missiles. Essentially, with the system being considered by the Clinton administration, Alaska would be a more penetrable target that could be singled out by those countries or entities wanting to attack the United States.

- The best protection for Alaska is to deploy a ballistic missile defense system configured with the capabilities to protect Alaska on an equal basis with the rest of the United States. This may require a modification to the ABM treaty as the system is developed over the next several years. Alaska's Congressional delegation, and this resolution, support this option.

At a recent House Military and Veterans Affairs Committee hearing, representatives from M.I.T. and the Institute for Foreign Policy Analysis testified on Alaska's role in the country's defense readiness and presented notable information:

- World arms trade has changed dramatically since the end of the Gulf War. Nations learned that if they end up in a challenge with the United States, tanks and battlefield armaments can be reduced to worthless rubble. Increasingly, nations are arming themselves with theater and, where possible, ballistic missiles. More and more nations, from China to the Middle East, are putting second strike capabilities and command and control systems deep underground.

- In this information age, prohibitions on the sharing of technology are rapidly losing their effectiveness. At the same time, economic incentives for experts or crime syndicates to sell this technology are increasing.

- Attitudes about war have dramatically changed over the last generation. Target options may be shifting from civilian population centers to what M.I.T.'s Dr. Fine terms as "remote and complex regions". Prudhoe Bay, with extremely high value and a relatively small population, is a unique target. Even the prospect that an adversary of the United States could have a high likelihood of success in attacking Prudhoe Bay could prove highly disruptive to world oil and financial markets, not to mention Alaska's investment.

Our concern over these issues stems from capabilities, not intent. Alaska can have a special role in improving peaceful ties with Russia and China and in cultivating economic interdependence with trading partners around the world. This resolution is intended to supplement established bipartisan arms control and nuclear nonproliferation efforts by bolstering the capabilities of our vigil.

Already, Chinese and Russian missiles can reach Alaska-- and the capability of other countries including North Korea, Iran, Iraq and others opposing United States militarily or supporting international terrorism, is growing. The President and Congress of the United States may make important decisions regarding our ballistic missile defense system in the near future. We must make a statement now.

Office of Senator Frank Murkowski
Fax Transmission

Fax: (202) 224-5301 • Voice: (202) 224-6665

TO: Laura Chase

FROM: Carter Hudlow

PAGES: 10

MESSAGE: As requested.

SUPPORTING
DOCUMENTS

Good afternoon Mr. President.

I rise today to voice my strong support for the Defend America Act. I won't comment on every aspect of this important legislation, but there are certain issues which bear highlighting.

Although we in Alaska may sometimes wish we were further away from Washington, DC, I think the citizens in my State would be shocked to learn that this Administration apparently dismisses the strategic importance of Alaska, the other non-contiguous state, Hawaii, and U.S. territories. Have President Clinton and his advisers forgotten which state Japan chose to strike first, and what event drove us into World War II?

President Clinton has said, "The possibility of a long-range missile attack on American soil by a rogue state is more than a decade away." This statement ignores testimony in 1994 by John Deutch, then Deputy Secretary of Defense, "If North Koreans field the Taepo Dong 2 missile, Guam, Alaska and parts of Hawaii would potentially be at risk." Does the President

really mean that Alaska is not American soil?

As President Clinton's first Director of the CIA, James Woolsey, stated, "[T]he contiguous 48' frame of reference for this NIE (National Intelligence Estimate), if the document is used as a basis for drawing general policy conclusions, can lead to badly distorted and minimized perception of the serious threats we face from ballistic missiles now and in the very near future -- threats to our friends, our allies, our overseas bases and military forces, our overseas territories, and some of the 50 states."

Very few of those in opposition to this bill give much thought to the actual nature of the threat that currently exists. As I've mentioned, the intelligence community has documented that the North Koreans are developing the capability to strike my State of Alaska with intercontinental ballistic missiles. That is not to mention those nations with adequate current capability such as Russia and China or those nations racing to gain such technology such as Iraq, Iran and Libya.

I have heard several of my colleagues dismiss the threat from

North Korea because that country is on the verge of collapse. I would remind my colleagues of some historical facts. First, North Korea has a history of reckless, irrational acts. This is the country which launched the invasion of South Korea in 1950 resulting in the deaths of 3 million of her countrymen and more than 33,000 American troops; a country whose agents detonated a bomb in Rangoon killing sixteen South Korean officials; a country whose agents blew up a Korean Airlines flight killing 115 passengers and crew; and a country whose military hacked American personnel to death in the DMZ. Using missile blackmail may be just the type of desperate act North Korea might try to get the U.S. to start talking about a separate defense treaty, something that country has sought for years.

Second, conventional wisdom has put North Korea "on the verge of collapse" for so long that it rivals the speculation over the ever "imminent" death of the Ayatollah Komeni.

Third, if anything, the United States is extending the life of the North Korean regime by providing vast sums of free oil and expensive nuclear reactor technology under the terms of the Agreed Framework.

So I would not be so quick to dismiss North Korea as a threat.

An extremely important aspect of this bill is that it would allow the U.S. to act in its best interests abroad without the fear of having U.S. cities held hostage by hostile nations possessing intercontinental missiles. For instance, during the recent series of Chinese missile tests off the coast of Taiwan, President Clinton rightly sent in U.S. warships to stabilize the situation. During the crisis, a high level Chinese diplomat stated in a thinly veiled threat of nuclear missile blackmail that the U.S. would not come to the aid of Taiwan because it was more worried about Los Angeles than Taipei.

And although we are not debating this particular aspect of missile defense right now, I believe Majority Leader Bob Dole was exactly right in his recent speech on Asia when he called on President Clinton to begin to work with Japan, South Korea, and our other Asian allies in developing, testing and deploying ballistic missile defenses --- a "Pacific Democracy Defense Program." I believe this concept should be extended to Taiwan, which we know from the recent Chinese tests of missiles just off

Taiwan's shores, is vulnerable to missile blackmail. The U.S. is committed by law to providing for Taiwan's defense, but thus far, we leave her defenseless to this significant threat.

Mr. President, the United States is a global power with vested interests both politically and commercially all over the world. We simply cannot allow U.S. policy to be determined by those who would practice missile blackmail.

It is a fact that today in 1996, with the Soviet Union and the specter of communism no longer casting a shadow over global peace, the world is in many ways even more dangerous than when the cold war raged.

In place of a global struggle between the west and expansionist communism, we now have the proliferation of weapons and missile technology that has the potential to make every nation hostile to the U.S. and our allies a serious threat by virtue of simply buying what they need on the open market. Despite very detailed arms control treaties that are in place, we have seen time and again, that nations determined to get weapons technology usually do.

Let's take a look at Iraq, the world's most heavily inspected country, where United Nation's teams have been on the ground for years, and where we are constantly surprised by new revelations of Iraqi efforts to rebuild their offensive capabilities.

During the days of the cold war, the policy of both the U.S. And Soviet Union was called MAD, or Mutually Assured Destruction. This policy was based on mutual fear. Should the Soviets launch an attack on the U.S., our response would have been reciprocal in nature. Essentially, if you attack us, we will attack you. The Defend America Act seeks to move us away from such a hair trigger defensive posture. Indeed, according to the Washington Post "both countries have more to fear from rogue nations than each other".

Many of those wanting to acquire ballistic missiles today, not only lack the stability of our old nemesis, but have actually used weapons of mass destruction on their neighbors and their very own citizens. These same countries have also stated very publicly their desire to purchase weapons technology that

would allow them to reach the U.S. Libya's Muammar Kadafi has often spoken of his desire to "have missiles that can reach New York" to serve as a deterrent to U.S. diplomatic action.

Most Americans will remember watching Iraqi Scud missiles rain down on Israel and Saudi Arabia during the Gulf War. In fact, the greatest single loss of American life in the Gulf War occurred during a scud missile attack.

The situation is so dire that the Secretary of Defense, William Perry, recently issued a report declaring that the proliferation of missile technology "presents a grave and urgent risk to the United States and our citizens, allies and troops abroad".

The need for a missile defense system is obvious. It would provide a limited defensive capability to defend the U.S. against a limited attack by a rogue nation, accidental or unauthorized launch against the U.S.

Lastly, I would like to address the issue of cost. This is very important because the opponents of this bill are making claims that have little to do with reality. The Congressional Budget

Office did indeed issue a report saying that a particular configuration of a missile defense system could cost upwards of $30-60 billion. However, if one were to actually read the bill, it does not mandate any particular type of system configuration. In the letter accompanying the report, CBO Director June O'Neill stated that the costs for such a system "would be $10 billion over the next five years, or about $7 billion more than is currently programmed for national missile defense".

The Washington Times in an article last month wrote that the difference of $3 billion is a hedge amount used by the CBO against technical or schedule risks that are typically associated with such an undertaking. The $31-60 billion numbers are for something far more grandiose than the bill envisions.

I would also like to pose one question to my friends in opposition to this bill: What price would they place on Anchorage? Or Los Angeles or New York or any American city? What is the price we are ready to pay to protect ourselves from some maniac who finds himself in charge of nuclear, biological or chemical weapons and the means to deliver them?

I guarantee that, God forbid, should an American city ever be hit like the Israeli cities were during the Gulf War, there would be a hue and cry across this land asking why we not put up even a limited defensive capability when we clearly had the know how.

To paraphrase Oscar Wilde, the opponents of this bill seem to know the price of everything and the value of nothing. This bill will give the United States a limited capability to defend itself at a modest cost in an increasingly unstable world and should be passed.

Thank you Mr. President, I yield the floor.

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April 29, 1997

The Honorable Robin Taylor
Alaska State Senate
State Capitol
Juneau, AK 99801

Dear Robin,

Thank you for taking the time to hear the briefing on ballistic missile defense issues provided by the team which came to Juneau and Anchorage last week. David Tanks of the Institute of Foreign Policy Studies, Daniel Fine of MIT, Brian Kennedy of the Claremont Institute and I are all grateful for the attention you provided, especially given the crowded end of session agenda.

The debate occurring in Washington on the scope of ballistic missile defense to be adopted by the United States could have major consequences for Alaska. As is often the case in other matters, such as trade, development, and environment, Outside decision makers have a poor understanding about what Alaska is, where it is, and what our potential is to the nation. When it comes to defense, we've been a target before, due to ignorance and neglect, and it would be nice to avoid that again.

As other developments occur on this issue, we'll do our best to keep you informed. If there is any additional information you need, please let us know.

Thanks again for your time and attention.

With best regards.

Sincerely,

Mead

Mead Treadwell
Managing Director

PS You can reach our experts at the following coordinates:

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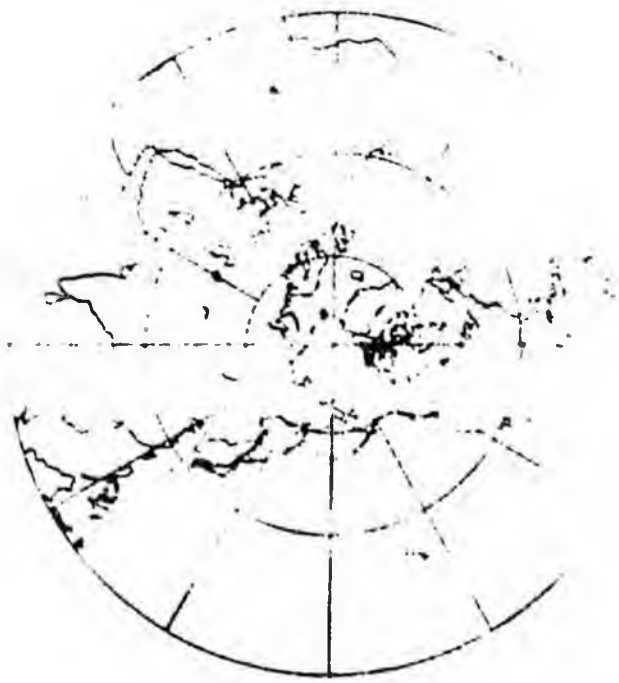
Daniel Fine, Research Associate, Massachusetts Institute of Technology, Bldg. 4-049, Cambridge, MA 02139 (Ph. 617/253-3237)
Brian Kennedy, Vice President, Claremont Institute, 1127 11th St., Ste. 206, Sacramento, CA 95814 (Ph. 916/446-7924)

A study on:

Exploring U.S. Missile Defense Requirements in 2010:

April 1997



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BACKGROUND INFORMATION

CONTENTS

EXECUTIVE SUMMARY

Introduction

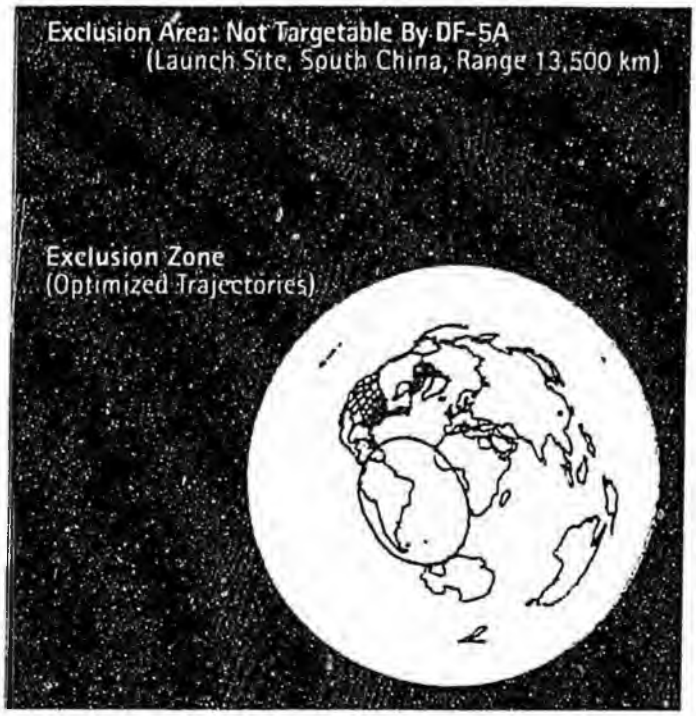
In determining the policy and technical challenges that will govern missile development 7-15 years in the future, this study effort goes well beyond the missile issue to examine the underlying goals and objectives that are likely to motivate the behavior of the major states during the next decade (Chapters 1-4). Included in the first chapter of this assessment is an explanation of how the migration of knowledge is tending to move technological and manufacturing capabilities towards a position of greater international equilibrium. This equilibrating effect will allow more of the world's states to develop the precision-guided munitions, cruise missiles, and ballistic missiles that they saw demonstrated with such good effect during the Gulf War. Chapters 2-4 then examine the national dynamics that are at work in a number of states of concern. This portion of the assessment looks at internal technology transfer environments, non-official actors within the states that influence the flow of sensitive weapons and technology (to include organized crime groups and China's Red Princes), and tries to develop a sense of what types of missile threats are likely to emerge from these actors and how those missile capabilities might affect the United States' ability to defend important national interests in the future.

The assessment then turns to the issue of the technical challenges inherent in mounting a missile defense. Chapter 5 describes the missile defense countermeasures that missile designers are incorporating into their missile systems, the practical difficulties that these countermeasures pose for U.S. missile defenses, and what is or is not being done to solve those challenges. Chapter 6 describes the findings and recommendations, to include the rationale for them. Chapter 6 is wholly devoted to just those aspects of the problem that directly influence the missile defense environment.

Uncertainties in the New Era

In examining the international situation likely to govern future relations, it is clear that most countries want long-range strategic missile systems for their deterrent value. Unfortunately, what is not so clear is whether or not all other countries would be mutually deterred by U.S. nuclear forces if issues involving perceived national sovereignty were involved in some future confrontation.

At the tactical level, cruise and ballistic missiles with battlefield- through theater-level applications



are proliferating widely. There is a general consensus in the United States that accepts the requirement for the development of tactical missile defenses against cruise and ballistic systems. However, much of the current thinking is still oriented toward defeating *Scud* missiles. During the next decade, it appears that a number of missile systems with detachable warheads and greater penetration sophistication will become common. Thus, future tactical missile defenses must be able to defend against targets that will be much more capable than *Scuds*.

Although it is clearly recognized that a significant number of countries will possess tactical missile systems by 2010, the possible threats to the United States are less clear. While the study discusses the expected environment of 2010 in some detail, it is noteworthy to review the potential missile threat to the United States itself in that time frame.

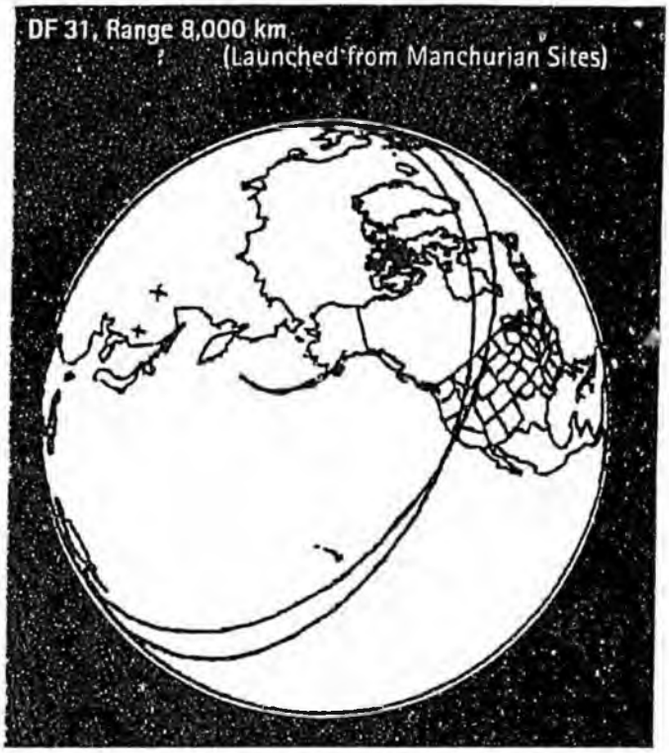
Russia, of course, still poses a threat to the United States, both in terms of its missile forces and as a source of proliferation. As is generally known (and discussed in detail in Chapter 2), Russia's military is in disarray; the control that it exercises over its strategic missile forces is weakening. Thus, the possibility of an unauthorized launch is increasing and must be considered to be a distinct possibility.

Perhaps of equal or greater significance is the problem of proliferation from Russia. Nuclear materials are leaking across Russia's borders, and the transfer of missile technology and components is occurring. Much of this trade is taking place outside of official channels. Unfortunately, what now constitutes official channels is not very clear. The explosion of crime and corruption in Russia is leading to a fusion of government, industrial, and criminal groups into an integrated whole so that it is difficult to distinguish their separate roles.

Consequently, it should be expected that Russia will be a source of proliferation for the foreseeable future. It must also be considered that Russia may help arm potential allies as a means of building a better balance against U.S. power. Iran, India, and China have been specifically cited by Russian strategists as being potential candidates for membership in an alliance with Russia designed to counter the power of the United States, Europe, and Japan. The missile proliferation role which Russia could play will be further examined shortly.

At the same time, China is emerging as a power in its own right. China now has the capability of striking the United States with an acknowledged 17-20 ICBMs, most of which are the DF-5A with a range of *over* 13,000 kms. As shown in the figure, from an assumed firing location in Southern China, the DF-5A can strike anywhere in the world with the exception of Latin America and the edge of West Africa. China is in the process of developing Multiple Independent Re-entry Vehicle (MIRV) warheads for this missile (which is also expected to incorporate penetration aids). Open source accounts indicate that by the year 2000, the DF-5As are likely to be equipped with 6-9 RVs per missile.

China also has several missile modernization programs. The DF-31 mobile missile will have 8000 kms range and will be able to strike several states (see figure). This same missile will have a naval version, the JL-2. It will be deployed on China's new Type 094 nuclear submarine by about 2005. A 12,000 km range version of this mobile missile, the DF-41, is expected to be deployed by 2010. In addition, China has a family of tactical missile systems



that it values for their ability to strike high-value targets on China's periphery. Chinese strategists are in the process of discussing warfighting strategies for the missile and nuclear forces.

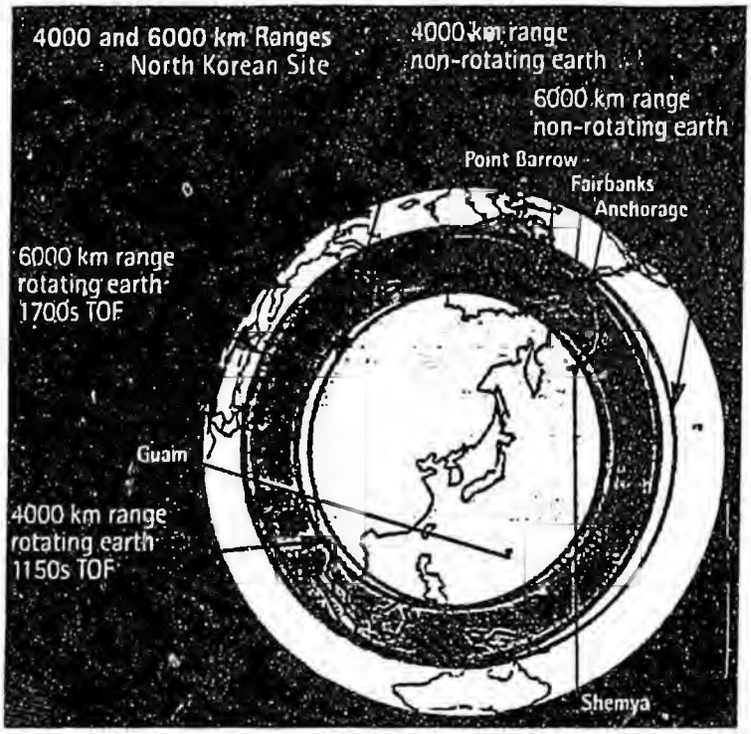
China has a real concern regarding the survivability of a second-strike missile force. Lacking a comprehensive early warning system, China has long worried about the possibility of a preemptive strike. In an effort to ensure the security of its deterrent force, there are some suspicions that China may have created extensive tunnel complexes (perhaps as much as 5000 kms) in which to hide its missile forces. The massive 12 year effort was called the Great Wall project. If these suspicions prove correct, China has a strategic strike force that might be protected by more than one-km of overhead earth. Considering China's evolving thinking on nuclear warfighting doctrine, coupled with its general sensitivity to sovereignty issues, the possibility should be considered that in the event the United States finds itself in a major confrontation with China (similar to the Cuban Missile Crisis), China might not back down if it, in fact, has an assured retaliatory missile force deep underground. (Note: the Soviet missile forces were vulnerable to preemption during the Cuban Missile Crisis.)

India also has nuclear devices and a growing missile capability. Its polar space launch vehicle (PSLV) uses a solid booster with a reported one million pounds of thrust. The PSLV could now be adopted as an 8000-km range ICBM if India decided to do so. It is expected that parts of the PSLV are being incorporated into the rumored *Surya* ICBM. The *Surya* is believed to have begun development in 1994 and could be ready for test-

Ground Range (km)

Start Point			End Point			Non-Rotating Earth	Rotating Earth*			
	Latitude	Longitude		Latitude	Longitude		2500s TOF		2000s TOF	
New Delhi	28.62	77.22	Bangor ME	44.79	-68.77	11107	10648	Δ=4.1%	10748	Δ=3.2%
			Miami FL	25.78	-80.20	13539	13047	Δ=3.6%	13158	Δ=2.8%
			Omaha NE	41.27	-95.97	12198	11997	Δ=1.6%	12043	Δ=1.3%
			Seattle WA	47.60	-122.33	11299	11465	Δ=1.5%	11441	Δ=1.3%
			Los Angeles CA	34.05	-118.23	12823	12989	Δ=1.3%	12969	Δ=1.1%

* Range difference between Rotating and Non-Rotating Earth is a function of the direction of flight (E->W or W->E) and time-of-flight. Other factors such as reentry angle and booster performance affect TOF.



ing within the next year or two. As can be seen in the figure, if the *Surya* does achieve its expected range of 12,000 kms, from New Delhi it would be able to strike targets in the United States north of a line extending from Raleigh, NC, to Eugene, OR.

North Korea is, of course, working on the development of *Taepodong* 2 (TD-2) missile that is expected to have a range of 4000-6000 kms (see figure). North Korea wants to develop an ICBM as a means of deterring the United States. Its TD-2 missile is believed to be a part of that program. However, the missile is reportedly experiencing problems. The amount of delay these problems will cause in fielding the system is unknown. Current estimates look for the TD-2 to be fielded between 2000-2005.

Unfortunately, indigenously produced missiles may not be the only threat to the United States. One of the more serious possibilities raised by the study is that the long-held idea that nations will not transfer ICBMs to other states may no longer prove true as the next decade unfolds.

As noted earlier, with respect to control in Russia and, to a certain extent, Ukraine, sensitive technologies are flowing out of these countries at an increasing rate. Central control over Russia's mobile ICBM systems, such as the SS-25, is becoming tenuous as living conditions and discipline in those units decline. There is also no guarantee that this system or some other model of ICBM could not be transferred to another country directly from factory representatives as knock-down kits for assembly. As discussed in the report, it is relatively easy to bribe materials out of Russia.

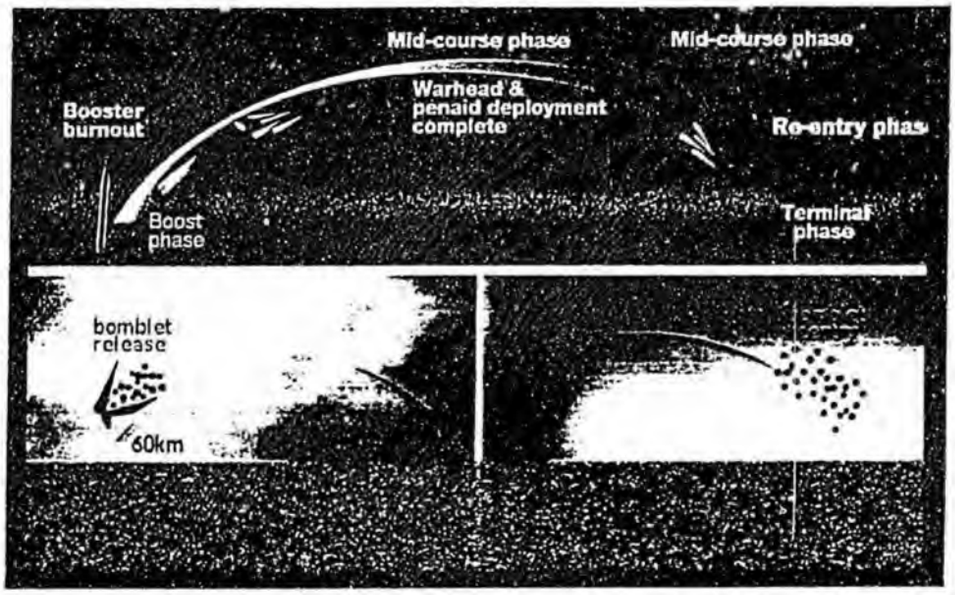
Many officials, factory managers, military officers, law enforcement personnel, and organized crime groups are willing to engage in illegal activities for a price. This willingness apparently includes the transfer of MTCR restricted long-range missiles and missile technology. For example, one SS-25 may have already been sold to China, and there are unconfirmed reports that 45 of the SS-25's replacement, the *Topol* M, may have been offered for sale to India by Russian military officials. If so, the taboo on transfer of long-range ballistic missiles may already be weakening. The recent reports of a suspected transfer of Russian SS-4 missile technology and components to Iran further underlines this concern.

It should be kept in mind that the view of the ICBM as a strategic system is a perspective held most strongly by the United States. That thinking is heavily influenced by the existence of the Atlantic and Pacific Oceans and friendly neighbors. To Russia and China, shorter-range missile systems on their borders are strategic systems. As medium-range missiles proliferate on the peripheries of these two countries, it could well be that the decision makers involved will no longer see a reason for withholding ICBM technology to the states along the Eurasian rimland. From their perspective, since they will already be threatened, there will be no reason to protect the United States from being subjected to the same type of situation rather than lose potential missile sales that could benefit their own economic well-being.

One of the more serious scenarios might involve the transfer of ICBMs to North Korea. If North Korea made a decision to reunify the Korean peninsula by military conquest, it might first make a major effort to acquire some number of ICBMs as a deterrent against U.S. intervention in defense

of South Korea. Although the missiles could be mobile SS-25s moved across the border from Russia, they could just as well be missile component assemblies acquired from Russian factories for final assembly in North Korean facilities. Since North Korea has hundreds of underground fortified sites, it could easily hide this missile force undetected until needed to force the United States to leave South Korea to its fate.

Such a development would pose a major quandary for U.S. decision makers. If they decide the U.S. will fight in the defense of South Korea, several U.S. cities might well be destroyed. If they decided the risks are too great, and the U.S. sat on the sidelines of the subsequent fight, U.S credibility as a reliable strategic partner would be destroyed, current allies would move to make alternative security arrangements, and many existing trading patterns would change (to the detriment of the United States) as countries sought to develop and strengthen new security relationships. The United States' global position of leadership would be weakened.

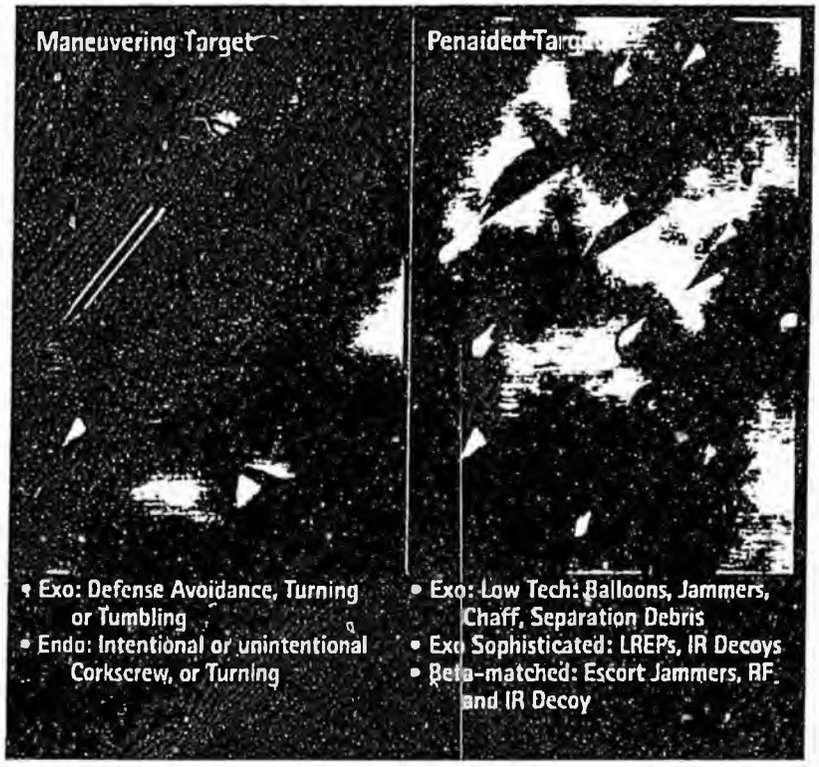


Unfortunately, if North Korea should obtain either the SS-25 or its replacement, the *Topol M*, the envisioned first generation U.S. national missile defense capability that could be established by 2003 may have some difficulty making an intercept against the SS-25. However, the new *Topol M*, with its advanced penaid capabilities could prove to be extremely challenging. Although the United States' efforts to build a limited national missile defense system prior to 2010 is clearly warranted and should proceed, it should do so with the understanding that the initial systems deployed are not end products. They will require frequent upgrades as technology matures.

As reflected by the findings and recommendations, there is insufficient effort being devoted to developing the technology that will be required for future insertion. The U.S. Congress is oriented on funding hardware, not technology. The Administration claims it wants to wait until the technology matures, yet funds technology as a last priority.

Major Findings

- Export control regimes are expected to become increasingly ineffective as nonproliferation tools. The evolving international political and technological environment will continue to erode the utility of this approach to security.
- Missiles, both ballistic and cruise, will likely proliferate at an accelerating rate, along with warhead technology. Within the overall proliferation trend, it is becoming more difficult to predict the rate at which a specified country will emerge as a holder of ballistic missile and weapons of mass destruction (WMD) capabilities since the foreign assistance aspect is an incalculable variable.
- The probability is increasing that ICBM missiles (either assembled as systems or as part of "knock-down kits" for assembly) could be transferred to other states prior to 2010.



defending against the more advanced classes of missiles discussed in the forgoing findings.

The developmental process and related funding allocations are not well balanced for long-term technological growth and system sustainment. The technology community and the program management organizations are not well integrated; their respective operations are too independent from each other so that the flow of technology from conception through procurement is not a smooth process. Since offensive missile developments will control the speed with which U.S. missile defenses will have to be upgraded, the efforts of the technologists and PM organizations need more unity of effort if the United States is to maintain an effective missile defense capable of maintaining its effectiveness in the face of rapid change.

- Currently, four states can target the United States with either ICBMs or SLBMs: Russia, China, France, and the United Kingdom. Prior to 2010, India and North Korea will likely join this group. Ukraine, Japan, Israel, Germany, Sweden, Italy, Brazil, Argentina, and South Korea (or a unified Korea) could join this group if they decided to do so. More problematic are the Arab states of the Middle East. Iran and Iraq will likely be able to target London and Moscow by 2010. *The unknown variable is the foreign assistance factor.*
- By 2010, penetration aids, maneuvering warheads, low radar cross sections, and similar technologies will become increasingly common in ballistic missiles. Most newer versions of cruise missiles will also incorporate some level of stealth technology.
- Tactical missile defenses must be able to defeat an array of warhead types: unitary, submunition, and bomblet. National missile defenses should be able to defend against MIRVed nuclear warheads. There is a limited possibility that BW agents might be packaged in submunitions for ICBM delivery.
- The initial missile defense systems deployed by the United States will have some difficulties

Recommendations

- Develop and deploy a robust system of tactical defenses against ballistic and cruise missile systems; field a first-generation national missile defense in the near-term, one capable of incorporating frequent upgrades without major system rework. Begin now to develop the upgrades needed to increase the capability of these initial systems.
- Balance the missile defense programs for indefinite sustainment. The program focus should be on the delivery of capabilities that can grow and develop over the decades ahead. Let the funding levels appropriated determine system deployment dates.
- The technology community and the program management organizations should be better integrated to facilitate an improved flow of technology from conception through procurement. Require PMs to first conduct a review of already developed or ongoing technology programs before contracting for new technology development. Likewise, hold technologists responsible for the delivery to the PMs of insertion-ready products.

- Require all future missile defense systems to be designed for easy upgrade and technology insertion. To the extent possible, avoid proprietary architectures that would be expensive to replace as new technologies are developed.

Conclusion

The security structure and political alignment in the international community may well change in significant ways prior to 2010. The common perceptions that developed during the Cold War, under conditions of bipolarity, may no longer prove valid under conditions of multipolarity. One perception that may prove false is the idea that it is in no country's national interest to transfer ICBM systems. The second is that nuclear weapons are unusable. As was discussed in Chapter 3, there are at least some in the Chinese military establishment that think otherwise.

The United States' missile defense program is going in the right direction in that it is working toward the deployment of hardware. Unfortunately, the systems being developed are first generation developments with some limitations against newer-generation missile systems. Unless the United States develops a balanced program that sustains the missile defense effort indefinitely, the missile defense systems deployed could always be one generation behind the offensive systems they were intended to defend against.

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Ballistic Missile Defenses
IP 496B

Interest in the issue of defenses against both theater and strategic ballistic missiles has recently reemerged. Accordingly, we have compiled this selection of CRS products, articles and newspaper coverage of the current state of U.S. theater missile defense (TMD) efforts, the status of the former SDI program, and the progress of recent negotiations with Russia on modifying the ABM Treaty to permit TMD testing.

Members of Congress who want further information on this topic may contact CRS at 7-5700. Additional CRS Reports may be identified by looking in the current *Guide to CRS Products* (for congressional use only) and in the latest *Update* under "Defense Policy or Weapon Systems."

Constituents may find additional information on this topic in a local library through the use of printed and electronic indexes, such as *Readers' Guide to Periodical Literature*, Public Affairs Information Service *Bulletin* (PAIS), and various newspaper indexes. Books on this subject may be identified through the library's catalog or the most recent edition of *Subject Guide to Books in Print.*

We hope this information will be helpful.

Congressional Reference
Division

3/97

Source: *Congressional Quarterly Weekly Report*, February 15, 1997, p. 435.

Will GOP Renew Missile Defense Drive?

A key question in this year's defense debate is whether Republicans continue to emphasize national anti-missile defenses, given the failure of that issue to arouse much public interest in last year's presidential campaign.

Senior administration officials insist that Clinton's $3.5 billion anti-missile program for fiscal 1998 is a serious bid to meet the GOP halfway. But the initial Republican response was not receptive.

Anti-Missile Defense Programs

(In millions of dollars, fiscal years)

FY	'97	'98	'99	'00	'01	'02	'03
Theater Defense							
Patriot-PAC3	601	555	471	459	445	433	397
Navy Area	310	283	271	351	318	287	263
THAAD	519	561	595	603	618	949	980
Navy Theater-Wide	304	195	192	191	191	145	149
National Defense	829	505	406	310	310	392	392
Detection Satellites	231	219	158	172	244	419	925
Other*	1,086	1,172	1,274	1,261	1,106	1,005	1,250
Total	3,980	3,490	3,367	3,347	3,232	3,630	4,356

*Basic research, administration, other missile defense programs.

Fiscal 1997 amounts are as enacted by Congress. All other years are Clinton administration plans.

• **Near-term Improvements.** Relatively little controversy surrounds the two systems slated for earliest deployment — an upgraded version of the Army's Patriot, which was used in the 1991 Persian Gulf War with mixed success, and a modified version of the Navy's Standard anti-aircraft missile. Both are "theater defenses," intended to protect U.S. forces or allies abroad from attack by relatively short-range missiles.

The new Patriot, designated Patriot Advanced Capability 3 (PAC-3), uses a much smaller and more agile missile that matches the existing Patriot's range of about 20 miles. The budget includes $555 million to begin procurement of the new Patriots and $283 million to continue developing the short-range Navy system, designated the Navy Area defense.

• **Long-range Theater Defense.** Last year a group of Republicans sued the Pentagon in a thus-far-unsuccessful effort to accelerate deployment of two other theater defense systems designed to fly 100 miles or more and intercept attacking missiles that fly farther (and thus faster) than the new Patriot could handle. A provision of the fiscal 1996 defense authorization bill (S 1124 PL 104-106) required deployment by 2000 of the Army's Theater High-Altitude Air Defense (generally referred to as THAAD). The Pentagon insists that deadline is technically impossible to meet, but the $561 million THAAD request for fiscal 1998 is the first installment of an administration plan that would have the missile ready by 2004, rather than in 2006 as it had planned.

The long-range Navy system, the so-called Theater-Wide defense, is another variant of the Standard missile launched by destroyers and cruisers equipped with the Aegis system of computer-driven radars. The administration's request for $195 million — a prime candidate to be increased by Congress — entails for the first time a commitment to deploy this system, though it would not meet the 2001 deadline in the fiscal 1996 authorization bill.

• **National Missile Defense.** The greatest emphasis in the public debate likely will be on the system, not yet developed, to protect U.S. territory from a relatively small number of attacking missiles, such as might be acquired by North Korea or Libya.

Republicans have been demanding an iron-clad commitment to deploy such a "national missile defense" by 2003. By contrast, the administration's plan would develop the system to the point where, in 2000, a decision could be made to deploy by 2003 if the threat seemed to warrant it. The fiscal 1998 request for $505 million is another likely candidate for congressional increases.

Source: *Washington Times*, February 7, 1997, p. A14.

Pentagon budget includes missile defense

By Bill Gertz
THE WASHINGTON TIMES

The Pentagon's fiscal 1998 budget request to Congress includes funds to speed up deployment of the Army's new regional missile-defense system.

The Defense Department is seeking $259.4 billion for defense and Energy Department weapons programs, $8 billion less than is being spent for defense this year.

A Pentagon news release said the budget, drawn up under former Defense Secretary William J. Perry, increased "budget authority" — the amount the Pentagon is authorized to spend — above projected inflation levels and was achieved "because President Clinton, during the final weeks of budget preparation, added $7 billion to the [Department of Defense] top line and allowed DoD to keep $4 billion of inflation savings."

"This marked the fifth time in four years that the president increased defense spending above previously planned levels," the statement said.

Congressional Republicans, however, increased the current defense budget by about $10 billion over the objections of Mr. Clinton, who eventually gave in and approved the increase.

Congress is expected to add more to the defense budget again this year.

"This budget request looks like a tightrope without a safety net," said Rep. Floyd D. Spence, South Carolina Republican and chairman of the House National Security Committee.

Sen. Strom Thurmond, South Carolina Republican and chairman of the Senate Armed Services Committee, said the budget request is "inadequate for our security."

Defense Secretary William S. Cohen told reporters at the Pentagon that his priorities include keeping high-quality people in the military, and making sure forces are militarily prepared and weapons systems are modernized.

The budget seeks $42.6 billion for new weapons in fiscal 1998, a decrease of $2.9 billion from projected spending in last year's budget.

"We can no longer afford to continue to raid procurement funding and putting it into O and M [operations and maintenance], and it's one of the major challenges that we face for the future," Mr. Cohen said.

Mr. Cohen said an additional $3.5 billion is being added for missile defenses, with the goal of speeding up deployment of the Army's Theater High Altitude Area Defense (THAAD) from 2006 to 2004. A new space sensor, the Space Missile and Tracking System, also will be deployed two years earlier than planned. A first launch is now set for 2004.

As more nations acquire short-range missiles and technology, the foreign missile threat places U.S. and allied troops "at greater and greater risk," Mr. Cohen said.

The budget could change depending on the results of the Quadrennial Defense Review, a review of defense strategy and force structure now under way, Mr. Cohen said.

Other major weapons buying programs for the next fiscal year, which begins Oct. 1, include: new helicopters, vehicle and tank modifications for the Army, additional F/A-18 aircraft, a destroyer and a new submarine for the Navy, tilt-rotor aircraft and jets for the Marines, and new Air Force C-17 transports, surveillance aircraft and satellites.

Source: *Washington Post*, October 31, 1996, p. A24.

Russia Backs Off Missile Test Treaty

Signing Ceremony Scrubbed as State Dept. Officials Speculate

By Michael Dobbs
Washington Post Staff Writer

Russia has backed away at the last moment from signing an agreement negotiated over the past three years with the United States that would permit the testing of some missile defense systems, U.S. officials said yesterday.

The surprise Russian decision to cancel a ceremony in Geneva today to sign the agreement on lower-speed regional missile defenses comes at a time of political turmoil in the Kremlin caused by the illness of President Boris Yeltsin. There was some speculation by bewildered U.S. officials that the two events could be linked.

"It is not clear what is motivating them," a State Department official said. "The charitable interpretation is that there is a little bit of disarray in their policymaking apparatus right now."

The Clinton administration had laid great importance on the new agreement, which, in the American view, would permit the testing of lower-velocity antimissile defense systems. During a meeting in New York with Russian Foreign Minister Yevgeny Primakov in September, Secretary of State Warren Christopher described the accord as a "milestone" in relations between Russia and the United States.

In another sign of U.S. concern over recent developments in Russia, Deputy Secretary of State Strobe Talbott warned Russian leaders in a speech Tuesday against becoming the victim of "conspiracy theories and Russian old think." He said the Russians faced a challenge of "overcoming their lingering Cold War stereotypes" about America and complained that many Russians believed that the United States was out to weaken Russia and divide it.

The assessment contrasted with previous generally upbeat assessments of U.S.-Russia relations by Talbott, the Clinton administration's point man on the subject. A State Department official said that Talbott's speech was designed in part to "fire a shot across the [Russian] bow" by making it clear that there are limits to U.S. flexibility.

The United States and Russia are also at odds over the Clinton administration's plans to enlarge the North Atlantic Treaty Organization by 1999 to include several former Soviet bloc countries, such as Poland, the Czech Republic and Hungary. Russian leaders have denounced the proposed step as a prelude to a new division of Europe, but have also sent signals that they would like to negotiate key issues, such as the deployment of nuclear missiles and the eastward movement of NATO troops.

State Department spokesman Nicholas Burns said that the United States was "disappointed by Russia's reversal of its own position" on the missile defense agreement. He added that Russia needed to make sure that it "does not isolate itself in the future."

The purpose of the draft agreement was to clarify interpretation of the 1972 Anti-Ballistic Missile (ABM) Treaty, which prohibits defenses against intercontinental ballistic missiles, but not against shorter-range theater missiles. The United States and Russia have been negotiating what systems can be developed and deployed legally under the treaty.

U.S. officials said the Russians informed them earlier this week that they wanted to delay signing the accord on low-velocity systems until agreement can be reached in tougher negotiations on faster, longer-range systems. The Russian objections caused Undersecretary of State Lynn E. Davis to cancel her proposed trip to Geneva. Instead, she flew to China for talks on curbing proliferation of missile technology.

Source: *Washington Post*, October 15, 1996, p. A15.

Where Would All the Missiles Go?

Bruce G. Blair

During the first Clinton-Dole debate, the president proudly stated: "There are no nuclear missiles pointed at the children of the United States tonight and have not been in our administration for the first time since the dawn of the nuclear age." The facts can be interpreted otherwise.

Although President Clinton and Russia's Boris Yeltsin agreed to stop aiming strategic missiles at one another after May 1994, they did not implement their pledge in any meaningful sense. Neither removed the wartime aim points from their missiles' portfolios of preprogrammed targets. Neither lengthened the amount of time needed to initiate a deliberate missile strike. And the risk and consequences of an accidental or unauthorized launch barely were affected by their pledge.

So what actually has been done to honor the agreement? No one knows for sure because no provision was made for verification. But I can clarify crucial details because of my knowledge of U.S. missile-aiming practices and information about analogous Russian practices given to me by their experts.

In a meeting in early 1992 at my research institution, John Steinbruner, Fred Iklé and I proposed to a group from the Russian Foreign Ministry that our governments act to reduce the risk of nuclear accidents and cement our new post-Cold War relationship by taking all strategic missiles off alert—that is, modifying them so that they could not be launched quickly. The Russians conveyed the recommendation to President Yeltsin, who immediately called for an end to the United States and Russia targeting missiles at one another's territory. To the chagrin of Russian planners, who thought the idea ridiculous, the proposal rapidly gained political momentum and acceptance in both countries.

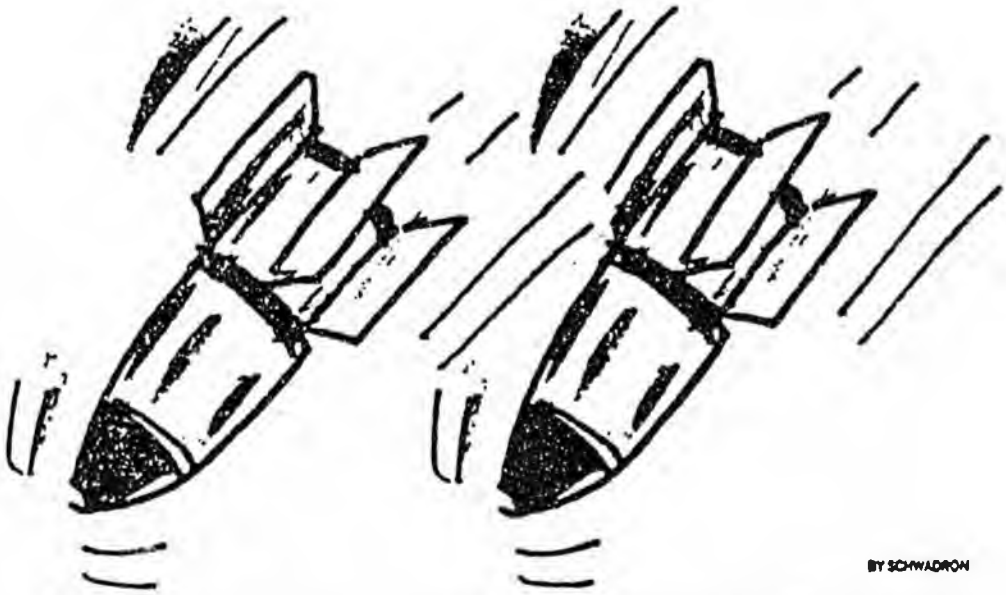
To fulfill their obligations, the Russian military set their intercontinental missiles on what they call a "zero flight plan." This setting sounds good, but it is nothing more than a symbolic gesture, because the missiles' memory banks retain their wartime targets. If Russia decides to launch strategic rockets, a single order sent from Moscow to the rockets over an automated computer network is all that it would take to reprogram all of them for their wartime targets. Time required for the retargeting: 10 seconds.

And what if a missile is launched accidentally or illicitly? It automatically would switch from its "zero flight plan" back to its primary wartime target. In short, Russia did nothing to diminish its missile threat to the United States.

For its part, the United States set its missiles on a trajectory that ends in the ocean, while preserving, just as the Russians did, the previous wartime aim points in the missiles' memory banks. A few strokes on a computer keyboard are all it would take for launch officers to redirect the missiles to their wartime targets. Time required to retarget the entire U.S. missile force for Russian destinations: 10 seconds.

As for illicit launches, anyone who managed to circumvent the safeguards certainly would be able to perform the simple keyboard strokes that would aim the weapons at Russia.

Continued . . .



BY SCHWADRON

Having the missiles aimed at ocean targets does mean that a missile launched accidentally because of an electrical short-circuit or other malfunction would land harmlessly in the ocean. Thus one positive practical consequence of the detargeting pact has negligible importance, however, because a purely accidental launch is extremely unlikely.

All these changes, though negligible, apply only to land-based strategic missiles. The targeting changes made to missiles on submarines were even more trivial.

The standard practice for decades has been for the United States to aim its submarine missiles at ocean targets whenever they are brought to maximum launch readiness in peacetime—for instance, during the routine testing of guidance gyroscopes. In wartime, aim points are fed into the missiles just before firing. Time required to load Russian aim points into the entire U.S. submarine missile force, which carries thousands of warheads: a few minutes. Russian subs are in a similar position.

Despite the president's reassurances, the American (and Russian) public should take little comfort in the effectiveness of the missile detargeting pact. Far bolder steps need to be taken before their leaders can take credit for ending the nuclear missile threat to our countries' children.

The writer, a nuclear missile launch officer in the 1970s, is a senior fellow at the Brookings Institution.

Source: Aviation Week & Space Technology, October 14, 1996, p. 67.

New Funding Spurs Space Laser Efforts

JOSEPH C. ANSELMO/WASHINGTON

A congressional increase in funding for the Space-Based Laser has allowed TRW to resume testing of a high energy chemical laser that was put on hold by the Pentagon two years ago.

The Alpha hydrogen-fluoride laser is one of three key components scheduled to be brought together next year as part of a Ballistic Missile Defense Organization (BMDO) effort to demonstrate the viability of high-power, space-based chemical lasers.

Proponents say such lasers could play a key role in ballistic missile defenses, firing upon enemy missiles from satellites to destroy them during the initial "boost phase" of firing. But it is questionable whether such a system could be deployed without violating the Anti-Ballistic Missile (ABM) Treaty between the U.S. and Russia.

TRW began work on the megawatt-class Alpha laser in 1980 and conducted its first test firing in 1989 (*AW&ST* Apr. 17, 1989, p. 23). The Alpha was fired 10 more times through August, 1994, then placed in "preservation mode" storage after BMDO scaled back funding for its Space-Based Laser program.

But the Republican-controlled Congress reversed those cuts, most recently adding $70 million to the $30 million BMDO had budgeted for space-based laser activities in Fiscal 1997.

The added funding headed off a potential delay in the Alpha/LAMP Integration (ALI) program, a BMDO effort to demonstrate critical space-based laser technologies in a series of ground tests next year.

TRW resumed testing of the Alpha laser on Sept. 18, successfully firing it for 5 sec. at its Capistrano test facility near San Clemente, Calif.

BMDO is currently considering whether to conduct one or two additional tests before the laser's scheduled integration with two other ALI subsystems that were also developed in the 1980s. Those systems are a projection telescope with a 13-ft. (4-meter) aperture known as the Large Advanced Mirror Program (LAMP) that is built by Hughes' Itek operation, and the Large Optics Demonstration Experiment, a Lockheed Martin-built beam control system. Lockheed Martin is also the prime contractor for the overall ALI effort.

The ALI components are scheduled to be tested in a simulated space environment next spring and summer at TRW's Capistrano facility. Program managers say all three could later be built on a larger scale to generate the power needed for an operational platform that could defend against ballistic missiles.

Technicians prepare the LAMP telescope for testing. The mirror is designed to project and shape a 4-meter-wide laser beam traveling thousands of miles through space.

The technologies for all three subsystems have been developed, according to Dan Wildt, TRW's space-based laser integration program manager. "These tests will demonstrate that they work together end-to-end."

In addition to the ALI program, BMDO is working on several advanced technology efforts aimed at making space-based laser platforms lighter, more capable, and less costly.

Wildt said a space-based chemical laser would operate at an altitude of 1,300 km. and would have a "lethal range" of 4,000-5,000 km. A single satellite could cover as much as 10% of the Earth's surface, he said.

An operational space-based laser would be capable of intercepting missiles as they reached 9-11 km. altitude, a region above the cloud tops, Wildt said.

If the laser missed a target, its operational wavelength of 2.7 microns would ensure that the beam would be absorbed by water vapor before it reached the surface of the Earth.

Wildt said the next logical step after the ALI tests would be to build a laser system that could be tested in space.

But it is highly questionable whether such a system could be deployed—or even tested—without violating the ABM treaty.

The Clinton Administration's interpretation of the ABM treaty allows for the deployment of some space-based sensors that are classified as "adjuncts" and not "components"—an example being the U.S. Defense Support Program satellites that track missile launches.

"If you can test systems not as components but as subsystems, there may be some greater freedom," said Keith B. Payne, president of the National Institute for Public Policy and codirector of a recent two-year, Russian-American study on the ABM treaty.

But, he added, "if you're talking about space-based laser interceptors in an ABM mode, [the treaty] would certainly appear to prohibit deployment of such systems."

A future president could, however, adopt a broader interpretation of the ABM treaty that might create some leeway for testing and deploying space-based laser platforms—although such a move would likely generate a huge outcry from Russia and other nations.

Payne said the Reagan Administration announced in 1980s that it was adopting a broad *legal* interpretation of what the treaty permitted, but would still adhere to a narrow interpretation in practice.

But the Clinton Administration modified that policy, saying it would interpret the treaty narrowly both legally and in practice.

Source: Aviation Week & Space Technology, October 14, 1996, p. 86.

EDITORIAL

Let's Have Straight Talk On Missile Defenses

A degree of civility has been restored to American politics, thanks to the presidential contenders Bill Clinton and Bob Dole and their running mates. Now, if only they would follow up with a bit of intellectual honesty in their discussion of a key national security issue facing the U.S.—missile defenses.

To build or not to build, when, how much and at what cost? Those are the issues. Any serious consideration quickly touches on thorny matters of international law and geopolitical relations, intelligence capabilities and threat assessments, strategic tradeoffs and nonproliferation efforts—not to mention the standard questions of military requirements and technical performance that must be analyzed before developing any system.

It's all enough to make missile defenses, particularly national missile defense, a subject that one commentator aptly described as mind-numbingly complex. Unfortunately, Clinton and Dole's oversimplification and hyperbole on this issue have served only to confuse many Americans further.

Both candidates say they want to develop effective theater missile defenses. The main point of contention between Clinton and Dole is on national missile defense. The Clinton Administration believes no threat is imminent, so research should continue at least until 1999 before a deployment decision is made. Dole says that is flirting with disaster and wants work to begin posthaste so a system can be in place by 2003.

Dole has pointed out that most Americans naively believe the U.S. already has the capability to shoot down attacking missiles. But after knocking down this straw man, he exaggerates the capabilities of the initial system that he and congressional Republicans want to deploy.

Campaigning in California, Dole said a Chinese official had threatened to "rain nuclear bombs on Los Angeles" if the U.S. defended Taiwan. "In my administration, California will never again be subject to nuclear blackmail."

The "threat," made by a low-level Chinese diplomat, was seen in Washington as merely "a little psychological warfare." It was never taken seriously. More importantly, though, what Dole failed to mention is that a single-site system that complies with the Antiballistic Missile Treaty with Russia would do little to thwart an attack from China. Army Lt. Gen. Malcolm O'Neill, who recently retired as chief of the Pentagon's Ballistic Missile Defense Organization, estimated such a system would have 5-10% "leakage." That would render it essentially ineffective against even a modestly capable nuclear power.

But, alas, Clinton has been far less than candid, too. At the recent debate with Dole in Hartford, Conn., the President repeated a brag: "There are no nuclear missiles pointed at the children of the United States tonight and have not been in our Administration, for the first time since the dawn of the nuclear age." Never mind the sensationalism of singling out children. (One imagines a Strategic Rocket Forces planning session: "Forget those ICBM silos, I see another day care center we could hit.") The more salient point is that those Russian missiles of which he was speaking could be retargeted easily in a matter of minutes.

Clinton did not address the question of so-called rogue nations—such as Iraq, Iran, Libya and North Korea—acquiring long-range ballistic missiles. That is what the national missile defense scheme in question would be designed to counter. Many supporters of the Administration's policy rely on a controversial National Intelligence Estimate that concludes no rogue nation will have the capability to strike the U.S. with ballistic missiles before 2010. But their definition of "U.S." apparently doesn't include Alaska and Hawaii. O'Neill told Congress that the Taepo Dung 2 missile that North Korea is developing could have a maximum range of 6,000 km. (3,700 mi.)—enough to reach Alaska and part of Hawaii.

Whoever is president next year should be prepared to justify his national missile defense policy based on a sober projection of the capabilities of rogue nations and unpredictable states. Any debate should be based on the facts, not emotion or rhetorical tricks. And in the meantime, presidential candidates should realize it is a disservice to the American public to pretend that either: A) China is prepared to attack the U.S., or B) ballistic missiles are no longer a concern. ©

Source: *Congressional Quarterly Weekly Report*, October 12, 1996, p. 2928,2929,2931.

APPROPRIATIONS

Clinton Signs Republicans' Fortified Defense Bill

Congress spreads extra money among a range of programs rather than imposing many major policy changes

Anti-Missile Programs

For anti-missile defenses, the conferees approved a 31 percent increase over Clinton's budget, appropriating $3.65 billion instead of the $2.80 billion requested. That total included five major components:

- Slightly more than a quarter of the funds were for two systems slated for deployment in the next few years to protect forces in the field against the relatively short-range missiles currently deployed by many countries. For these systems, the bill included the requested amounts — $311 million for the Navy's "lower tier" system and $597 million for the Army's PAC-3 upgrade to the Patriot system used in the 1991 war with Iraq.
- Roughly another quarter of the total was earmarked for more sophisticated anti-missile weapons intended to protect forces against advanced missiles — mostly still on the drawing boards — that would be harder to hit because, flying farther than the current types, they also would fly much faster. The conferees allocated to these two programs nearly half their total increase in anti-missile spending, approving $622 million for the Army's THAAD program ($140 million more than requested) and $304 million for the Navy's "upper-tier" program (an increase of $246 million).
- Slightly less than a quarter was earmarked to develop a "national missile defense" system to protect U.S. territory against missiles with even longer-ranges. The conference report provided $833 million, which was $325 million more than requested.
- Slightly less than 15 percent of the funds ($526 million) goes to other "theater" defenses, so-called because they are intended to protect U.S. forces or allies in distant theaters of military operation, rather than protecting U.S. territory.
- The remaining 10 percent of the total is for basic research, including exploration of more futuristic anti-missile technologies. The bill's $367 million appropriation for these programs is $140 million higher than the request, an addition that includes $70 million for work on a satellite-borne anti-missile laser.

In addition to the total of $3.65 billion appropriated for the Pentagon's Ballistic Missile Defense Organization, the bill included other funds for related programs, including:

- $249 million — more than double the $120 million requested — to develop missile detection satellites.
- $57 million, as requested, to develop an anti-missile laser to be carried by a jumbo jet.
- $50 million, not requested, to develop an anti-satellite missile.

Source: *Congressional Quarterly Weekly Report*, October 12, 1996, p. 2932.

DEFENSE

Missile Program Suit Dismissed

A federal district court Oct. 9 dismissed a suit filed by 41 members of Congress to force President Clinton to accelerate development of two anti-missile defense systems to meet deployment deadlines Congress set last year. However, while Judge Stanley Sporkin declined to rule on the dispute at this time, he insisted that a president could not simply disregard an explicit law and indicated that the court might weigh in later.

At issue is a provision of the fiscal 1996 defense authorization law (PL 104-106) requiring that the Army's THAAD system be deployed by 2000 and that the Navy's comparable "Upper Tier" system be fielded by 2001.

Clinton had vetoed an earlier version of the bill to force Congress to drop other anti-missile provisions, but signed the second version with the deadlines included. Less than a week after he signed the bill, however, the Pentagon announced that, far from trying to meet those deadlines, it was slowing the pace of the two programs to accelerate development of other anti-missile systems. *(Weekly Report, p. 1984)* ■

Source: *Washington Times*, September 28, 1996, p. A3.

Panel raps Pentagon progress on missile-defense program

By Bill Gertz
THE WASHINGTON TIMES

Five years after an Iraqi Scud killed 28 U.S. soldiers in Saudi Arabia, the Pentagon has yet to deploy effective defenses against such short-range missile attacks, a senior defense official said yesterday.

Paul Kaminski, undersecretary of defense for acquisition and the Pentagon's point man for missile defense, was questioned sharply by members of Congress about the lag in deploying regional U.S. missile defenses. He appeared before a joint hearing of the House National Security subcommittees on procurement and research and development.

Rep. Duncan Hunter, chairman of the procurement panel, accused the Pentagon of failing to abide by laws passed by Congress after the 1991 Persian Gulf war requiring deployment of "highly effective" missile-defense systems.

"I think with all the programs you describe, all the effort that's been done — programs can't defend against missiles," Mr. Hunter, California Republican, said.

Mr. Hunter said Congress passed one bill several years ago requiring deployment of effective defenses against short-range missiles because of the Scud missile attack in Dhahran, Saudi Arabia.

"This administration has failed to defend the country," Mr. Hunter said.

MISSILE DEFENSES

The Pentagon has two regional missile-defense systems deployed with limited capabilities for shooting down incoming short-range missiles and no capability to knock out any long-range missiles. Several regional systems and one national missile defense are under development or planned for development.

Deployed:

- Patriot PAC-2 Guidance Enhancement Missile: an advanced Patriot system, 1995
- Hawk Improved Lethality Missile: a limited anti-missile system, 1995

In development:

- Patriot PAC-3 Configuration 1: expanded command and control, 1996
- Hawk TPS-59 upgrade: improved missile tracking, 1997
- Patriot PAC-3 Configuration 2: improved guidance and communications, 1997
- Theater High-Altitude Area Defense demonstrator: extended coverage capable of protecting population centers. Several emergency-use batteries, 1998
- Navy Area (Lower Tier): demonstrator units of Standard Missile-2 Block IV-A deployed aboard Aegis cruisers and destroyers, 1999
- Patriot PAC-3 Configuration 3: remote missile launch, 1999
- Navy Area (Lower Tier): full deployment, 2001

Other systems being researched:

- National Missile Defense: A three-year development program of a limited defense against long-range missiles with 20 interceptors that could be deployed by 2003 if a decision to do so is made in 2000
- Medium Extended Air Defense System: 360-degree protection from a mobile, land-based defense for NATO forces
- Navy Theater Wide (Upper Tier): Aegis ship-based system that will provide protection against longer-range missiles over a wider area
- Boost-phase intercept: Air Force airborne laser deployed on a modified Boeing 747 that will hit missiles shortly after launch. An unmanned aerial vehicle armed with interceptors also is being studied.

Source: Pentagon

The Washington Times

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Mr. Kaminski, in his written testimony, said the only two U.S. regional defense systems currently deployed cannot counter the threat posed by short-range missiles.

The Marine Corps Hawk system, designed for shooting down aircraft, is "very limited" against missiles, and the Patriot PAC-2, an improved version of the Patriots used in the Persian Gulf war, "is still not fully capable of dealing with the threat," Mr. Kaminski stated.

Mr. Kaminski outlined several anti-missile systems now in research or development phases as part of the Pentagon's $13.5 billion missile-defense budget for fiscal 1997 through 2001.

In 19 tests since 1982, anti-missile interceptors were successful six times, proving that "hit-to-kill" defenses are feasible, Mr. Kaminski said, comparing the technical challenge to "hitting a bullet with a bullet."

The velocities of interceptors and their targets are as fast as an M-16 rifle bullet, he said.

Rep. Curt Weldon, chairman of the National Security research and development subcommittee, said the administration has failed to deal honestly with Congress on the missile-defense issue. "It comes down to trust, and that's what's lacking here," Mr. Weldon, Pennsylvania Republican, said.

Mr. Kaminski said three recent test failures may keep the Pentagon from deploying the first units of the Theater High-Altitude Area Defense (THAAD) by the target date of 1998. Failure of the a fourth test in December would be a setback, he said.

U.S. Army Gen. Gary E. Luck, until recently the commander of U.S. forces in South Korea, urgently asked the Pentagon in a December cable not to delay THAAD deployment because of the growing threat of North Korean missile attacks on the peninsula.

The appeal was rejected by Gen. John Shalikashvili, chairman of the Joint Chiefs of Staff, who cabled back to say THAAD may not be deployed at all because its funds were needed to buy trucks and other equipment.

Asked yesterday at the hearing about the Luck cable, Air Force Gen. Joseph Ralston, vice chairman of the Joint Chiefs of Staff, said the Pentagon later agreed to add funds to the THAAD program in response to Gen. Luck, who has since retired.

Mr. Kaminski said the threat of short-range missiles to U.S. forces abroad "is real and growing" and a longer-range missile threat is "emerging."

Source: Aviation Week & Space Technology, September 23, 1996, pp. 27, 29.

Congress Orders Outside Review of Missile Threat

JOSEPH C. ANSELMO/WASHINGTON

With Republican-sponsored legislation to speed up deployment of a national missile defense system stalled in Congress, lawmakers have ordered the formation of two independent panels to reassess the threat of a ballistic missile attack on the U.S.

The recently approved Fiscal 1997 defense authorization bill contains a provision instructing Director of Central Intelligence John Deutch to create a panel of nongovernmental experts to review the "underlying assumptions and conclusions" of a controversial National Intelligence Estimate.

The November 1995 estimate concluded that "no country, other than the major declared nuclear powers, will develop or otherwise acquire a ballistic missile in the next 15 years that could threaten the contiguous 48 states or Canada."

Ranges to the U.S. and Canada*

*Excludes Hawaii and Canada's arctic islands. 1,000 km. = 625 mi.

Source: National Intelligence Council

The U.S. National Intelligence Estimate analyzed 18 nations that might pose a missile threat. All but Cuba were at least 5,000 km. (3,100 mi.) from North America.

The report was prepared by the National Intelligence Council, a group of 12 senior officials that reports directly to Deutch.

Intelligence community sources said last week that Deutch has begun assembling the review panel. The group's report is due three months after its formation.

The congressional defense bill also ordered the establishment of a separate, nine-member independent commission "to assess the nature and magnitude of existing and emerging ballistic missile threats to the United States." The speaker of the House and Senate majority leader are expected to control the appointment of six members of the panel, while congressional Democrats would control the remaining three.

The congressional mandate for an outside panel to reassess the National Intelligence Estimate comes on the heels of a General Accounting Office (GAO) report that questions the estimate's methodology.

GAO auditors said the estimate was supported by "considerably less" evidence than previous National Intelligence Estimates and did not account for alternate economic and political futures. They also noted that it was worded with "100% certainty" without odds or percentages to quantify the likelihood of key assumptions. Among the assumptions:

- The Missile Technology Control Regime will continue to significantly limit international transfers of missiles, components and related technology, although some leakage of critical components and technologies will continue.
- No nation with ICBMs will sell them.
- Countries assessed as being "high" in both technical ability and economic resources will not be interested in developing an ICBM that could reach the U.S.
- A flight test program lasting about five years is essential to the development of an ICBM.
- An attack against the U.S. from offshore ships using cruise missiles, while feasible, is unlikely to occur.

The congressional auditors said the scope of their report, which was conducted between April and June, was "significantly impaired" by a lack of cooperation by officials from the CIA, National Intelligence Council (NIC), Defense Dept. and State Dept. The report said Deutch's director of congressional affairs refused a request for access to CIA and NIC officials and documents, arguing that such matters fell under the purview of the intelligence community's congressional overseers.

Reaction to the GAO's conclusions was predictably mixed.

"All those people who are using the [estimate] to say there's no threat are going to have to admit there is a threat or find some other lousy, useless, poorly done document," said a congressional aide who has been strongly critical of the intelligence estimate.

But Joseph Cirincione, chairman of the Coalition to Reduce Nuclear Dangers, a group of 17 major arms control organizations, said that despite its misgivings the GAO did not challenge the basic conclusion of the National Intelligence Estimate.

The GAO "cited a half dozen independent reports that came to the same conclusion as the intelligence community—that it is very unlikely the United States will be threatened by any new ICBM in the next 10-15 years," he said.

Cirincione added that he is just as concerned as national missile defense advocates about the threat of nuclear weapons from places like the former Soviet Union falling into the wrong hands. "We disagree over what the most likely delivery system would be," he said. "They think it's a missile, I think it's a truck."

One intelligence community veteran said he believed the National Intelligence Estimate was not large enough in scope. He said policymakers asked intelligence analysts to answer the "very limited question" of whether a country currently hostile to the U.S. could develop an indigenous ICBM capable of hitting the lower 48 states within 15 years.

That's really a dumb question, he said. "First of all, why forget about Alaska and Hawaii? If you're talking about the North Koreans trying to blackmail the United States, they could do it with An-

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chorage just as easily as Kansas City."

Senior Pentagon and intelligence officials have acknowledged that North Korea's Taepo Dong 2 ballistic missile could have enough range to reach Alaska and the western reaches of the Hawaiian Islands (*AW&ST* June 3, p. 32).

That threat has been cited repeatedly by Republican presidential candidate Bob Dole. He has blasted the Clinton Administration's "three-plus-three" plan to wait three years before making a decision on deployment of a national missile defense system, which would then take three more years.

Before he left the Senate, Dole cosponsored legislation known as the Defend America Act that would mandate deployment of a national missile defense system by 2003.

BUT THE CONGRESSIONAL Budget Office hurt the bill's chances of passage when it estimated compliance with all of its provisions would require a multi-layered missile defense system with 500 space-based kinetic kill vehicles and possibly 20 space-based lasers. Such a system would cost $31-60 billion to deploy and $2-4 billion a year to operate, the CBO said.

Some Republican staffers have disputed the CBO's interpretations. But Senate Majority Leader Trent Lott (R.-Miss.) acknowledged last week that Congress probably won't take up the Defend America Act this year. Clinton Administration officials have indicated the President will veto the measure if it does pass.

Brassboard Demos ABL Beam Control

MICHAEL A. DORNHEIM/LOS ANGELES

Lockheed Martin says hardware tests show that its control system for an airborne anti-missile laser can overcome aircraft jitter, optical component distortion and atmospheric turbulence to place the required lethal dose of energy on a target.

The company is part of the Boeing/Lockheed Martin/TRW team that is competing against a Rockwell/Hughes/E-Systems team for the program definition and risk reduction phase of the Air Force's airborne laser (ABL) contract, which is to be awarded in mid-November.

Previously, predictions of laser control performance were from computer models, and the subscale hardware tests in July have increased confidence that the system can deliver enough energy and power to kill a thin-skinned, liquid-fueled ballistic missile from several hundred kilometers away. The Air Force has an independent review team monitoring the ABL program and "the July test was a significant milestone in convincing them that we've got the risk down," Neil F. Hahn, Lockheed Martin Missiles & Space ABL business development manager, said.

THE TEAM'S ABL CONCEPT works by first detecting missile targets with an infrared search and track set made by Lockheed Martin Electronics & Missiles. This cues a separate exhaust plume tracker on the main beam director. A multibeam 1.06-micron wavelength laser illuminates the target for imaging by a high-resolution infrared imaging sensor, which provides fine track data by looking through the main telescope optics that also guide a beacon laser and the kill beam.

The sensor finds the missile nosecone and aims a beacon laser at that point. The reflected light is measured to determine the optical distortion caused both by the atmosphere and by heated laser optics, and a correction signal is applied to several thin flexible mirrors. A low distortion, in-phase kill beam is desired for the maximum fluence, or effective power, on the target.

> Subscale hardware tests have increased confidence that the system can kill a thin-skinned, liquid-fueled ballistic missile from hundreds of kilometers

The 1.3-micron kill beam then fires for several seconds as the beacon laser and adaptive mirrors continue to correct distortions and the illumination laser and infrared sensor continue to track the target. The beacon is pointed slightly ahead of the kill beam so it can measure the atmosphere that the kill beam will travel at the round-trip light time later. The kill beam from a chemical oxygen-iodine laser (COIL) is provided by TRW and is aimed at the missile propellant tanks (*AW&ST* Aug. 19, p. 22).

The beacon and illumination lasers are at slightly different wavelengths from the kill laser so that they can filter out its intense energy in the shared optical path to perform their own functions. The illumination laser is multibeam and multipath to average out atmospheric scintillation effects for good imaging, while the beacon laser is multibeam but to a single point to measure scintillation.

Technical issues addressed by Lockheed Martin's laboratory "brassboard" optical bench include whether the adaptive mirror servo loop is quick enough to provide a good high-fluence wavefront despite atmospheric and optical distortions. The adaptive corrections operate at a several kilohertz rate to stay on top of atmospheric changes that occur at several hundred hertz.

THE BRASSBOARD EXAMINED whether the illumination laser and sensor could provide enough signal-to-noise ratio for target tracking, and whether tracking was quick enough to compensate for aircraft jitter. The test rig explored how many different beams the illumination laser needed to average scintillation to an acceptable level. Four to five beams appeared to be a good compromise between low scintillation and laser simplicity, Hahn said.

The brassboard is located at the Lockheed Martin Missiles & Space Advanced Technology Center and uses low-power visible lasers to simulate the illumination and beacon beams. The high energy COIL beam is not simulated. The shorter wavelength is scaled to match the smaller components and target ranges in the test rig. "Phase screens" simulate atmospheric scintillation based on USAF "ABLEACE" atmospheric test data. Error signals are injected into the adaptive mirror control loop to simulate optical train distortion from beam-heated mirrors. A folded optical path gives a 70-80-meter (230-260-ft.) distance to the target, which is 2-4-in. long.

Lockheed Martin plans to conduct tracking tests using a high-power illumination laser at the White Sands Missile Range, N.M., as early as this week. The thin adaptive mirrors have already passed tests that show they can tolerate contamination at high power, and are to be tested to ensure the low-absorption coating can withstand repeated flexing.

Source: *Los Angeles Times-Sunday*, Septemmer 16, 1996, p. M1, M6.

An Antimissile Defense? You See It Only in Movies

By Gregg Easterbrook

BRUSSELS

Fifteen years ago, the spectacular special effects of the movie "Star Wars" helped put the Strategic Defense Initiative, President Ronald Reagan's plan to build a defense against nuclear attack, in the forefront of U.S. politics. Those laser blasts on the screen looked so real that many viewers, Reagan apparently among them, presumed laser weapons exist—which they do not. Now the excellent special effects of the movie "Independence Day" seem to have helped renew missile defense as an issue in the presidential campaign. Viewers leave that movie with the impression that space combat is already possible.

It's not.

The closest thing the United States possesses to a weapon that could be used against nuclear missiles—an antimissile called Thaad—has failed in every test. "Smart" bombs launched under ideal conditions still lack the sort of accuracy a strategic missile interceptor would require under extremely difficult conditions. Even in the laboratory, lasers have yet to achieve the power needed to destroy an incoming warhead. No one has come close to testing any system that could track warheads falling at tremendous speed from space and aim a laser at them over hundreds or thousands of miles.

Nonetheless, space defenses are again in play as a political issue.

GOP presidential candidate Bob Dole, a fan of "Independence Day" and also a sudden staunch advocate of a missile defense, recently called President Bill Clinton's lack of interest in this "one of the most negligent, shortsighted, irresponsible and potentially catastrophic policies in history." Dole now proposes a crash program to field a few ground-based antimissile missiles by the year 2003. The Clinton administration has funded research into antinuclear systems, but fiercely resisted pressure to schedule deployment. This winter, Clinton vetoed a defense-budget bill because it contained language favoring the 2003 field date for a limited defense. On Sept. 7, Clinton said he would sign the fiscal 1997 defense authorization bill, which includes $3.7 billion for antimissile research—a hefty sum—but he agreed to sign only after the bill was amended to delete a GOP-backed call for the 2003 deployment.

Many Americans express surprise when informed that the United States has no defense whatsoever against intercontinental nuclear missiles (ICBMs) whose warheads would fall from space. If such a missile were fired at America today, there would be nothing the military could do. Dole says the limited defense he favors could protect the country from a small-scale missile attack by Iraq or North Korea; later, a complex defense, which would include futuristic air- and space-borne systems, would be built for defense against all-out attack by Russia or China. Clinton's defense secretary, William Perry, has said such a shield is unnecessary, because all-out attack is not in the cards, and Pentagon experts "do not see the threat of a missile attack on the United States" from small nations being possible for at least 15 years.

Any strategic defense system would be costly. The Congressional Budget Office estimates the Dole plan would cost up to

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$60 billion. Any system would also entail either violation or renegotiation of the Anti-Ballistic Missile Treaty in effect between the United States and the former Soviet bloc.

Republicans have long been eager to tear up the ABM treaty, which they view as a restraint on U.S. technological advantage (and a barricade to billions in funding for favored aerospace contractors). Democrats want to preserve the document, for it represents the first time during the Cold War that the United States and Russia agreed to avoid an entire class of military expenditures. But why shouldn't the ABM treaty be revised, if the Russians are agreeable? Any defense against missiles carrying atomic warheads would be in the public interest. The problem is, there is no reason to believe such defenses are possible.

Tens of billions spent during the 1980s by the Reagan administration on SDI resulted in no practical anti-ICBM—not even the notorious X-ray laser, which itself required detonating nuclear explosions to oppose nuclear warheads. Since then, research hasn't gotten much closer.

Last July, the Theater High Altitude Area Defense rocket, or Thaad, designed to protect Army units from battlefield missiles but also the closest thing to an anti-ICBM in the U.S. inventory, failed to intercept a mock target during a test. Thaad has failed in all three of its tests so far. It's Thaad—a rocket that would use advanced guidance devices to steer toward an incoming warhead—that the Dole bill proposes fielding by 2003.

Experiments with antimissile lasers are continuing, but none are close to practicality. Researchers at TRW recently successfully fired a chemically powered laser, code-named COIL, that has some potential against incoming missiles. But COIL's energy output is given by TRW as only "several hundred kilowatts"—in the range of 5,000 light bulbs. That's more umph than lasers used to have, but several times more power would be needed to destroy a nuclear warhead.

Even assuming more powerful lasers are developed, how to detect incoming warheads and aim weapons toward them is pretty much an unknown. The Air Force has a converted 767 jetliner, called the Airborne Surveillance Testbed, now flying around with a fancy infrared telescope, conducting measurements on how to aim at incoming nuclear warheads. Initial results suggest the infrared telescope would work on clear days, but some other form of aiming would be required if warheads were falling through clouds. Any actual test in which a laser is aimed at a real falling warhead is years off.

Early this year, a joint U.S.-Israeli experiment used a ground-based laser to destroy two small artillery rockets in low-altitude flight. This does demonstrate the principle that someday a laser system might bring down Armageddon missiles. But the rockets destroyed were of World War II vintage, moving relatively slowly near the ground. An antimissile system for nuclear protection would have to destroy warheads flying extremely fast and coming from space.

Technology simply isn't good enough yet. Consider the Patriot rockets used in the Gulf War. Patriots are a sort of junior antimissile missile and were trained against Iraq's 1950s-technology Scud missiles, which do not fly as high or as fast as ICBMs. The Patriot system is now believed to have scored only a few hits in dozens of firings.

Consider that of the 27 cruise missiles launched in the first wave of the recent attach on Iraq, so many missed targets that a second wave was required. Cruise missiles are technologically imposing, yet in the Iraq barrage they faced perhaps 1% the challenge an ICBM interceptor would face. The missiles were fired against stationary targets whose location had been elaborately mapped in advance. ICBM interceptors would be fired against targets moving thousands of miles an hour in unpredictable locations.

Current Pentagon data show that cruise missiles—probably the most accurate long-distance weapons in the U.S. quiver—land within 60 feet of their targets 90% of the time. (The pop-news notion that smart bombs used in the Gulf War went down smokestacks of buildings and performed other feats of fantastic precision is complete hokum. The General Accounting Office has found that only a few struck dead-eye on their targets, calling the performance of Gulf War smart bombs "overstated.")

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A more accurate long-range weapon now being developed, a conventional bomb called the GAM and which would be carried by a B-2 stealth bomber, is estimated to be able to land within 20 feet of its target. Such accuracy might be good enough for an anti-ICBM detonation, but also might have no applicability to nuclear defense.

Both Republicans and Democrats need to bust their mental blocks on the subject of antimissile systems. Republicans need to admit that the technology simply isn't ready yet, and no amount of bluster will make it so. Absurdity in the name of bluster was reached last spring, when 41 Republicans from Congress filed suit against the Clinton administration in federal court, demanding antimissile deployment. Sorry, but not even a federal judge can order lasers to work.

Democrats need to admit that a system that could protect the country at least against rogue governments that might acquire a few long-range missiles, and perhaps someday against larger threats, would be a judicious investment. Many, many billions are spent on Pentagon programs that could mean much less to the average person's life than stopping a nuclear warhead.

Reagan may have been confused about the distinction between special effects and operational missile defenses, but he once said something that may prove profound. He declared that if the United States could perfect an anti-ICBM technology, we might simply give it to the Russians in order to make the world a safer place for everybody. Possible now? Not even close. Constructive goal? Absolutely. Making the world a safer place ought to be the objective of Republicans and Democrats alike. Both sides should drop their posturing and cooperate, in hopes of someday achieving that rarest kind of defense spending—the kind that makes destruction less likely. □

Gregg Easterbrook is a contributing editor of the Atlantic Monthly. His most recent book is "A Moment on the Earth: The Coming Age of Environmental Optimism" (Viking).